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TWO STUDIES IN BLUE

BY WILLIAM L. FINLEY

PHOTOGRAPHS BY HERMAN T. BOHLMAN

BLUE is not a common color among our birds. There are many more clad in neutral tints of brown and gray than in bright blue. But a list of birds could not be complete without our two commonest studies in blue, the bluebird and the blue jay. [1] In all our woods from the Atlantic to the Pacific, one may find these two, one gentle and friendly, the other bold, boisterous and untrustful.

A small flock of jays are such a noisy pack in the autumn. They squawk thru the woods as if they wanted everybody to know just where they were; but in the spring after they have paired and are nesting, they suddenly go speechless as if they couldn't trust themselves to talk out loud. And indeed they can't when anywhere about the nest. They talk in whispers and flit as silently as shadows thru the trees.

In the early spring I heard the jays squawking about the maples on the hill, but I knew they would not nest there; that was only a play ground. A quarter of a mile below this was a thick clump of fir saplings. They would take this thicket for a home. The last week in May I searched thru this and found the nest eight feet from the ground among the close limbs.

A little earlier these same birds were blustering, bragging and full of noise. When I found the nest, one of the birds was at home. She didn't move till I shook the tree; then she slid off silently and went for her mate. In another minute they were both there, not threatening and swearing as I had expected. It was pitiful to see how meek and confiding they had become. There was not a single harsh word. They had lost even the blue jay tongue and talked like two chippies in love. They had a peculiar little note like the mewing of a pussy-cat. I felt ashamed to touch the home of such a gentle pair. If this was not a two-fold bird

1 This article refers to the Western Bluebird (*Sialia mexicana occidentalis*), the California Jay (*Aphelocoma californica*), and the Steller Jay (*Cyanocitta stelleri*), as observed in Oregon.

NEARLY FULL-FLEDGED CALIFORNIA JAY ABOUT TO LEAVE HOME

character, I never expect to see one. They go sneaking thru the woods, stealing eggs and wrecking homes of others, and squealing in delight at every chance to pillage—but this is legitimate in the blue jay code of morals. I have often wondered whether jays plunder other jays, or whether there is honor among bird thieves. Are there robber barons among birds as among men? But doves could not be more gentle and loving about the home, for the jays were devoted parents.

If this pair of jays carried on their nest robbing, they did it on the quiet away from home, for in the thicket and only a few yards away I found a robin's nest with eggs, and the nest of a thrush with young birds. Perhaps the jays wanted to

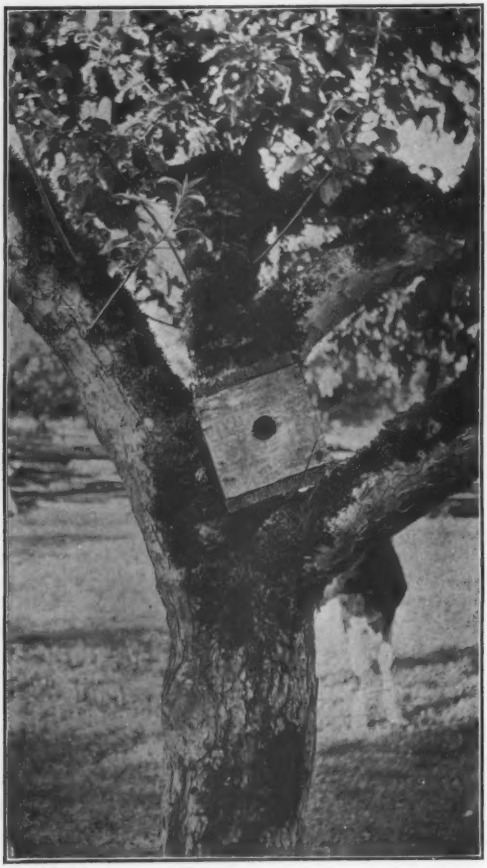
NEST AND EGGS OF THE STELLER JAY IN FIR TREE

stand well with their neighbors and live in peace. I am sure if the robins had thought the jays were up to mischief, they would have hustled them out of the thicket. I think we give both the crow and the jay more blame for nest robbing than they deserve; for investigation shows that they eat many insects, and in some cases I have known the jays to live largely on wheat and other grains.

Thruout the East the bluebird is known as the forerunner of spring. The bluebirds are the first to return and they bring the spring with them. But in the West where the winters are not so cold, a few always stay the year around. They fly together in small flocks during the day and sleep together at night. One even-

ing I saw four huddled in one of my bird-boxes. During the hard days of rain and snow they were continually together and returned at night to stay in the box. I think they were partly drawn to return each day by the food I put out. When I first saw them in the back yard, I tossed a worm out of the window and it had hardly struck the ground when it was snapped up. They ate half a cupful of worms.

The bluebird, the wren and the swallow have taken remarkably to civilization. They formerly built in holes in old trees in the midst of the woods, but now they prefer a house in the back yard. In one locality near my home we used to find the bluebirds nesting every year in some old stumps. Now several residences have been built nearby and in three of the yards there are bird-boxes, and the bluebirds have abandoned the stumps and taken to modern homes. A bluebird has better protection in a back yard and he knows it. Then if the owners like him, he grows fond enough of them to perch on the hand, and he pays rent in the quality of his song and by ridding trees of harmful worms.



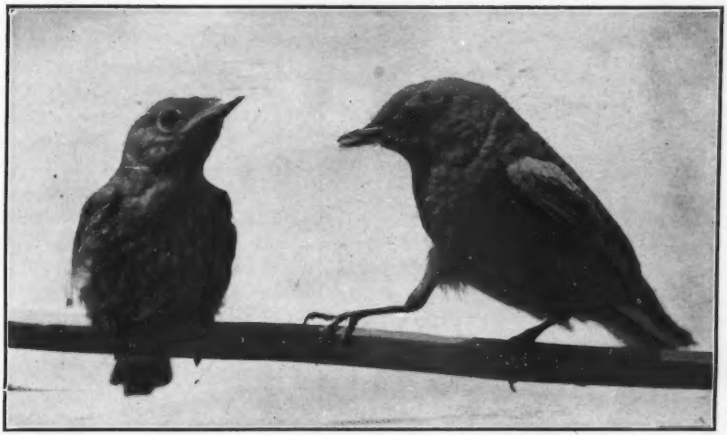
A MOSS-COVERED BIRD-BOX IN THE ORCHARD, OCCUPIED BY BLUEBIRDS SINCE 1897; OVER 110 YOUNG HAVE BEEN HATCHED HERE

Altho the bluebird often lives about the city, I associate him with country life. I imagine he likes a farm home better than a city flat. I have a friend in the country who has bird-boxes up in various places about his farm. Most of them find occupants every year. An old square box that is set in the crotch of an apple tree is ahead in the record. This box was put up in the spring of 1897 and was taken by a pair of bluebirds. It is only four feet from the ground and has a removable top so that the owner may readily make friends with the tenants. When I opened the box and looked in, the mother sat quietly on her eggs and was tame enough to allow us to stroke her feathers.

The box is now covered with moss and lichens, but it is famous in bluebird history. It has been occupied every year since it was put up, and not a single

year has there been less than two broods reared and several times three. The record year was in 1904 when the bluebirds had two families of seven and one of five birds, and succeeded in raising them all. Seven is a large family for bluebirds and it is more remarkable that there should have been seven in the second brood and then a third brood. In the eight years there have been over one hundred and ten young bluebirds hatched in this box in the apple tree. One would think the bird world would soon be overcrowded with bluebirds about the farm. There seem to be no more bluebirds there than eight years ago, altho there are generally two or three other broods raised in other boxes nearby. It all goes to show how the bird population decreases in numbers. The new birds of each year take the place of the numbers that die during the winter. Birds have so many enemies that we know not of. Many die of disease, many starve or die of cold, and many are killed by birds of prey and animals that hunt small birds.

It would be interesting to know whether the same pair returns each year to the box in the tree, or how many different pairs have lived there. Sometimes the same



PARENT BLUEBIRD JUST DRAWING BACK AFTER PLACING FOOD IN YOUNG BIRD'S MOUTH

pair have returned, but it is improbable that they have lived longer than three or four years. If one of the birds died, the other may have taken another mate and returned to the same home.

In the side of our tank-house we bored two holes about four feet apart and nailed up boxes on the inside. One of these was soon taken by a bluebird. The female went in and looked the box thru and in a moment came out and perched on the wire while the male took a look. The next day the female began carrying straws. She had a devoted husband, but he was merely an attendant when it came to work. He watched and applauded, but he didn't help build. I don't know but that he was too lazy; or maybe he didn't know whether his wife wanted him bothering while she was building to suit herself. It looked to me as if he were ornamental without being useful. But after watching awhile, it seemed that it was her duty to build and his to watch and encourage. When she carried in the material and fixed it, she popped out of the hole and waited while he went in to

look, and then out he would come with words of praise and away they would fly together.

I had a splendid arrangement to watch the builders at close quarters. I could go in the tank-house and close the door and then in the darkness I could look thru a crack in the box, and with my eyes less than a foot away, could watch every movement the birds made. While the mother was sitting on the eggs, she became very tame and we often reached in and stroked her feathers.

When the young birds came, I watched the mother come to feed and brood her young. The father was the ever-watchful admirer, but the mother was all business and paid no attention to him except to knock him out of the way when he was too devoted. The mother always brought in the food, and the father kept staying away more and more until the young birds were grown.

WESTERN BLUEBIRD ABOUT TO ENTER HOLE IN SIDE OF TANK-HOUSE, WITH FOOD FOR YOUNG

One day while I was watching, the mother was feeding the youngsters on maggots almost entirely. She would be gone quite a while, but each time would return with a large mouthful which she fed to the young. Occasionally one of the young failed to get all of them and if one dropped, the mother picked it up and ate it herself.

One of the eggs was addled and did not hatch, but the mother was very fond of it. She would look at it almost every time she returned and would turn it over and then hover it a few moments as if she were sure it contained a baby bird.

The nest was lined with horsehair and once when the mother fed one of the chicks, the food caught and the little bird swallowed the hair too, but both ends stuck out of his mouth. He kept shaking his head, but could not get rid of it. I waited to see if the mother would assist him, but she didn't seem to notice his trouble, so I had to reach in and dislodge the hair. Otherwise I am afraid it would have fared hard with the chick.

These bluebirds had five young in their first brood. When the first youngsters left the nest, the father became more attentive and helped care for the little ones that were just starting out in the world. They all stayed about the yard till the young knew how to hunt for themselves. Finally three of them disappeared; I suppose they went off with other bluebirds, and two of the young still stayed with us. The parents themselves seemed to disappear for a few days and I

thought they had left for good. Then one morning I saw the mother enter the house again and the father was there too, perched on the wire. He was more attentive than formerly. The next day I found a fresh egg in the nest. They had returned to raise a new family.

There were only three eggs in the second setting, and all hatched. The two young birds of the first brood followed the father about while the mother was sitting. Then when the mother began feeding her second family, I made some interesting observations. Her older children began following her about to hunt food, and to my surprise, I saw one of them bring some worms and after the mother fed, the young bluebird went into the box and fed her small brothers and sisters. After that I watched closely and often saw the birds of the first brood feed the little ones of the second brood. Perhaps the two birds of the first brood were girls and took readily to housework. They may have been learning for the next season when they themselves expected to have homes.

MALE WESTERN BLUEBIRD AT NEST-HOLE IN APPLE TREE

One of the young birds was very enthusiastic in helping her mother. Several times when the latter brought food, the young bird flew at her and tried to take the morsel she had in her mouth, as if saying: "Let me feed the children." And twice I saw the mother yield and let her older child feed the younger ones. It was a very pretty bit of bird life to watch these bluebirds. We were anxious to get a photograph of the mother and the young bird helping her. We tried by getting on top of the house and focusing the camera on the wire where the birds often alighted. We finally got one view of the two as the young bird was just in the act of jumping for the worm the mother held.

Portland, Oregon.

SOME EXPERIENCES OF A COLLECTOR IN ALASKA

By JOSEPH DIXON

(*Editorial Note.*—Mr. Dixon is a member of the party headed by Miss A. M. Alexander for the purpose of exploring from a faunal standpoint some of the islands of southeastern Alaska. The following article is compiled with scarcely any emendations from personal letters written by Mr. Dixon to the Editor of this Magazine. We hope we do not overestimate the interest which we believe should attach to such direct accounts of the conditions under which the field naturalist must work in that portion of our continent. This is in no wise intended as an exploitation of the scientific results of the expedition, which will doubtless be reported upon in an altogether different form.—J. G.)

Windfall Harbor, Admiralty Island, May 2, 1907.—We made camp on the west side of the harbor in a little cove on April 17. We had to cut into a snow bank in order to make a level place to pitch our tents. We have six tents up but we need them all: three sleeping tents, one cooking tent, one work tent and a store room.

When we came there was from four to eight feet of snow on the level but we have had several warm days so the snow is not so bad now.

The only place you can hunt is along the beach. The harbor froze over last night and the alders have not opened their buds yet. The skunk cabbage is just coming up. No flowers yet but we have seen two butterflies (not cabbage either!) as well as a Rufous Hummer today. We failed to get any of them however.

I was just figuring up tonight and found that during the two weeks we have been here we have collected 171 specimens, 109 mammals and 62 birds. Of mammals we have two fresh bear skins, about 12 Microtus, seven shrews, two mink and about 65 Peromyscus. The Peromyscus average about: length 189; tail 98; hindfoot 23. This cannot be *P. sitkensis* as we first supposed as the latter are much larger. It doesn't measure up right for *P. keeni* either. Perhaps it is nearer the mainland form. They are a rich brown on the sides. We saw our first bat last night, probably a Myotis of some kind. The bears are just coming out of their dens and are staying up around the snow slides and the upper edge of the timber where they feed on deer that are about starved to death. It is impossible to hunt them without snow shoes. The two skins were bought from the natives. One is an exceptionally fine one almost black. We have both skulls. They were killed about 30 miles south of here where they come out early. The minks we bought from the natives too. We can't find any and they only got eleven during the entire winter.

Of birds we have taken: Canada Goose, Scaup Duck, Surf and White-winged Scoters, Pigeon Guillemot (half winter, half summer plumage), Marbled Murrelet, Short-billed and Bonaparte Gulls, Sooty Grouse, Northern Raven, Northwest Crow, Northern Red-breasted Sapsucker, Song Sparrow, Sitka Kinglet, Siskin, Hermit Thrush, Varied Thrush, Robin, Winter Wren, Chestnut-backed Chickadee, Townsend Fox Sparrow and Sandwich Sparrow.

A pair of small rosy red Crossbills were seen today. They were evidently not the White-winged. We saw an owl the other night that was almost as big as an eagle. We had just emptied both guns at a flock of geese when he flew out from a tall tree. We also heard another (Horned) owl hooting that night, and also what we call our "tin can owl." It had a little tinkling note something like that one at Bluff Lake, but it kept going all the time only stopping once in a while for breath. Another little owl was hollering over camp just at day break the other morning but we couldn't find him. The natives say there are lots of Ptarmigan

here on the beach during the winter but they have gone back to the mountains now.

May 4.—You will probably get this letter on the installment plan as I will keep writing off and on as the spirit moves me until the boat comes and I have a chance to send the letter to Juneau.

I took a fine set of Bald Eagle on the 30th of April. The nest was in the very tip-top of a broken-topped spruce, 116 feet from the ground. The nest was seven feet in diameter and big and strong enough so that I could stretch out in it. The eggs were fresh and are not much nest stained. The old birds wouldn't fight at all!

I took a female, nest and four fresh eggs of a Townsend Fox Sparrow yesterday. I think it is *townsendi;* any way I have seven specimens now so that I guess I can find out when we get back to civilization. The nest was about 50 feet back from high tide in a thick clump of spruce boughs that drooped almost to the ground. The nest was about eight feet up. The whole vicinity was dark and damp and the nest hung over a pool of water. These sparrows look and act almost like *stephensi.* I found the nest a week ago by watching the female carry feathers. I had to wade thru snow to get the nest yesterday so perhaps that will throw some light on the date of breeding of *stephensi.*

Mr. Littlejohn got two Crossbills yesterday and one today, all males in breeding condition. One was almost one-third less in size than the other but was evidently the same species. They are not White-winged.

We fired into a flock of about a dozen waders the other day and picked up four Aleutian Sandpipers, a Black Turnstone and a Surf Bird. We were surprised to find all three species together.

The Indians up here think that they own the whole country. They have tried several schemes to get us out. They want us to pay them for hunting here. Whatever their faults may be they certainly are candid. One old squaw came over the other day and we finally got her to talk English, and she said: "Bear he heap smart, he hear gun he no come. You white men damn fools; shoot! shoot!! shoot!!! all the time." It seems to be beyond their thick heads to imagine what we want with the little birds. But of course we have to shoot them.

May 9.—We took a set of Western Golden-crowned Kinglet this morning. We took the whole thing: female bird, nest (part of tree attached), and seven fresh eggs. How would you like to have that to stick away in the corner of your cabinet? The nest was found by Littlejohn about ten days ago while we were looking for a sparrow's nest. It was right on the beach on the south side limbs of a fir tree. The nest is the prettiest that I have ever seen and was well hid, the green moss of which it was composed blending with the green leaves. The nest was semipensile and was about twelve feet up. The eggs are peculiar. They are about the size of Bushtit's but are longer drawn out. The ground color is a creamy white and near the middle there is a well defined wreath of fine golden specks. There are lots of the Sitka Kinglets here too, and when we have more time we hope to find one of their nests.

Mr. Littlejohn got a male White-winged Crossbill the other day. They are evidently breeding now and are very shy and stay way up high. I had to climb about 80 feet the other day to get one that had been shot and lodged. We are getting lots of new waders now but the mammals seem about played out so we are working at Miss Alexander's suggestion on *birds.*

Mole Harbor, Admiralty Island, Alaska; June 2, 1907.—We just got back yesterday from a trip into the interior of the island. We have been here just two

weeks and during that time I have spent but about three nights in camp. Miss Alexander has hired a man by the name of Al Hasselborg to go with us. He is an accurate observer and possesses a great deal of local knowledge of the islands and is altogether the best woodsman that I have ever seen. He had spent some time prospecting in the interior of the island and had found three lakes, two small and one large one; but he had no boat so could not tell how large they were or where their outlets were. The first lake is about four or five miles due west of Mole Harbor. The second one is really just a continuation of the first and together they are about 3½ or four miles long and very deep, as in some places a 100-ft. line would not touch the bottom 100 yards off shore. These two lakes are connected by a rapid stream and a 30-foot waterfall with the large lake, which is also very deep.

We packed the canoe up to the first lake and then packed up some grub and made camp for a few days. There were lots of beaver signs and cutting all around the lake and about 10 o'clock one morning when we were out in the canoe. a beaver came swimming around a bend and dove. When he came up again I began shooting at him with the rifle. I missed the first three times but the fourth shot just cut thru the skull between his eyes. He was evidently young and foolish and had been out late and was just going home or else I wouldn't have got him; because a beaver is nobody's fool I can tell you. An old wise one would put a coyote way back in the infant class. The lake's shore is very irregular and on many of the small points you can see little padded-down places in the grass at the water's edge where a beaver sits and chews the bark off of sticks. Usually there is a little pile of sticks from half to two inches in diameter and six inches to two feet long lying about. These are peeled and that makes them conspicuous. When eating the beaver squats and hunches himself up and then takes the stick in his fore paws and keeps twisting it round and round while he nips the bark off. One reminded me very much of a hungry man attacking a roasting ear of corn. They cut canals back into the woods for 50 feet or so, sometimes, so as to get back to the spruce trees. They prefer the willow, but as that is only found in a few favored localities most of them cut down small spruce trees. If no spruce is handy they will sometimes eat crabapple, huckleberry, and, as a last resort, alder. In the big lake, where there was a large stream coming in, we found a number of fine dams. Some of these dams were at least 100 yards long and in places four or five feet high. These formed a reservoir covering several acres. Above this dam there was a series of other dams; so taking it all together it was the dammedest creek I ever saw. I think that the beavers show their greatest engineering skill in the way that they divide the water so as to keep all the dams full and water-ways full between them. They fix the dams so that there is just a little water running over all the way along so that it does not wash out anywhere.

Most of the beavers lived in the holes in the bank, but others built houses. These houses resemble mammoth woodrat houses, as they are six feet high and 10 or 12 feet across at the base. The poorer ones were just a pile of saplings and sticks thrown together while the better ones looked as tho some one had shoveled mud on them. As many as six or eight beavers may live together in one house. They begin to come out of their houses about 6 o'clock in the evening and stay out until 6 or 7 o'clock in the morning. They are very shy and if an old one sees you he hunches himself up and brings his tail down with a pop on the water and you think that some one shot close by. If you bother them much they will leave and move to some other locality.

We have secured six specimens so far, all males. They are all very dark seal brown, almost black. There are a number back there and yet every one says that

there are no beaver on the islands, so we hope that it is something new. One specimen was 41 inches long and weighed 35 pounds. Another one was shot and stunned, and when Hasselborg went to pull him into the canoe the rascal came to and gave a big jerk and capsized the canoe. Hasselborg had to save the camera from going down so the beaver got away. If we had used the kodak less we would have had lots more skins.

We went up to the head of the lake and soon located three bears up among the alders on the mountain side above us. We had no grub and hadn't had any for a day, so we didn't have energy enough to climb the mountain. We went back to the first lake and about 5 o'clock Littlejohn and I started to go down to camp. It began to rain and the clouds came down so that we could scarcely see the tree tops. The huckleberry and the devilsclub had leafed out wonderfully in the few days that we had been over there and the first thing we knew we were off the trail. We tried to get back but couldn't. Then we tried to climb one of the low rolling hills to see if we could see out and tell where we were. After we had climbed several hills it began to get dark and we started for what we thought was Mole Harbor, but it was not long until we found that we were going round and round, for we came to our old tracks.

The wind was from the southeast when we started and that was all we had to go by, as we were so sure that we couldn't miss the trail that we had left the compass behind. Well, it was funny how that wind kept changing. First it came from the southeast, then from the east, next north and then west. We were not exactly lost; we just didn't known how we came, where we were, or which way we were going! Finally I said that I was going to follow a creek down until it either came to salt water or to the lake. We stumbled along thru the devilsclub and huckleberry for miles. Then the creek went into waterfalls in a deep canyon and we had more of a time After we had gone along for about four hours in this way we began to look around for a place to hole up for the night, as we were wet to the skin, tired to death and had had nothing to eat for 24 hours. It was so rocky that we couldn't lie down, so we had to go a little farther and just then we saw water ahead and came out on the beach right near camp! Yell?—well we tried to and couldn't, but we forgot we were tired and soon got to camp. They had just got a fresh supply of grub from Juneau, and we soon had our clothes changed and sat down, and then I found I couldn't eat! I'd choke every time I tried to swallow, but I managed to get a cup of cocoa down, read a letter and crawl into bed.

When I tried to get up the next morning I promptly fell over and lay there a while. I lay around for two days kind of dazed and kept wanting to walk, walk all the time. Now I keep a compass chained to me all the time but expect to get lost again as Hasselborg and Stephens both had compasses the other day and still missed their way.

Several days later Hasselborg, Littlejohn, Miss Alexander and I went back again. We made camp about 6 o'clock, ate supper and then went out in the canoe to look for bear, up on the mountain side. We soon saw one feeding in a gulch and Hasselborg started up after it. Littlejohn went up the creek and Miss Alexander and I watched from the boat and motioned to Hasselborg when the bear moved. He had to climb nearly 1000 feet, but part of it was up a snow slide. He made it in 40 minutes. (It took us one hour and a half several days afterwards.) Then we heard six shots and saw the bear disappear in the alders. Pretty soon we heard a dull thump, thump, and the old bear came rolling down over the cliffs. He fell about a quarter of a mile and would have rolled clear to the lake had he not hit a log just right.

We skinned him next morning and found that four shots had hit him. He had several old scars that showed that he had fallen before, but if you would look at some of the places that they go you would not be surprised. The fur was poor but the skull was about as large as the largest we have. The next day we hunted beaver and got two beaver cubs.

The next morning Hasselborg and I started out for Ptarmigan. We climbed up a ways and it began to get steep and cliffy and we came to some terrible places where we scarcely could go at all; we often had to turn back and hunt a better place. The ravines were filled with snowslides part way up; a swift stream came down and had thawed a large cavity out at the top and had undermined and made a passage below the snow. While I was crossing one of these slides the snow gave way and I fell in. I hung onto the gun and that was all that saved me from being put into cold storage for eternity, as the slides rarely melt. The gun caught on each side of the hole and I did some pretty lively scrambling, I can tell you!

When we got up on top it began to blow and snow, but there were small patches of heather that were bare, and the snow was hard enough to walk on. As we neared the summit I saw what looked like a pigeon circling around; but pretty soon it came closer and I saw that it was a Ptarmigan. They would fly out over the mountain side and let out a rasping cackle which sounds just like some one running a nail over the teeth of a stiff comb. Then they would hover for an instant and finally swoop down and light on a rock. I only saw five, but I got three of them. They were all males still in white winter plumage (May 31). One was just beginning to get a few dark brown feathers on his head and neck. Hasselborg saw a female the day before which was mostly brown, but we walked all over every bare space near the summit without scaring any up. He also saw what must have been a Leucosticte, but we could not find any of them again. The Ptarmigan have a black line thru the eye and are comparatively small so I suppose that they are Rock Ptarmigan. Hasselborg says that there are some here that have an entirely white head in the winter and are larger, so I guess the Willow must be here too. We had a hard time getting down the mountain and came to a place where we crawled down some alders and hung on to some twigs and peeked over. There was a 75-foot cliff below us and we had to go a mile to get around it. I started to slip in one place and grabbed a sharp rock that tore a big hole in the side of my hand, but I had to grab something or I would have gone clear down to the lake.

We saw two immense bears up on the mountain side but they were in a place that we could not climb to. It is surprising where they can go. They are big and heavy but they can go lots of places where a man can't.

I was looking over your "Special Desiderata." We are trying to make a big hole in it. Have the Ptarmigan, four pairs of grouse, and a pair with nest and set of eggs of Sharp-shinned Hawk. Saw a pair of Redtails but could not get them. Stephens and Hasselborg are up to the lakes now and I think that they will get some Leucostictes.

We saw several Townsend Warblers over at Windfall Harbor, but none here. Varied Thrushes are quite common here but are hard to get. We have everything that you got at Sitka (of the land birds) except eight species. In addition we have White-winged Crossbill, Northern Redbreasted Sapsucker, Pine Siskin, Myrtle Warbler, Redbreasted Nuthatch, and possibly some others that I do not remember without looking them up.

Miss Alexander is going to Juneau in a day or two to see what has become of our launch. We have been waiting for it for over a month now but the weather has been bad. Our next stopping place will be Red Bluff Bay on Baranof Island.

Miss Alexander, Hasselborg and I are going to go down the river from the lakes to Kootznahoo Inlet. If we can do this we will have crossed the island almost in the middle. Miss Alexander does not ask us to do anything that she would not do herself, but it takes a pretty good one to follow her. Well I must get to work on my notes now, so will have to let up for this time.

Hooniah, Chichagof Island, Alaska; June 20, 1907.—We just got here today and got our mail. We left Red Bluff Bay on Baranof yesterday and came up to Fresh water Bay and anchored last night. Then we came back to Hooniah to store our gasoline and some provisions.

Miss Alexander, Mr. Hasselborg and I left Mole Harbor, on the east side of Admiralty, on June 11 for a trip across the island to Kootznahoo Inlet and Killisnoo. We got thru all right but we had quite a trip. We were a little over two days going from Mole Harbor to Killisnoo. The total distance that we traveled was about thirty miles.

I saw lots of birds going down the river, several of which I couldn't recognize. I broke my paddle trying to stop to get one and it seemed as tho they were near swift places in the river where we couldn't stop. One place we had to portage around a waterfall and rapids for about a mile and a half and it was pretty tough. Shooting the rapids was all right but it would have been all off with us if we had hit a rock. The tide rips and rapids in Kootznahoo Inlet are worse than the rapids in the river, when the tide is running out.

I found a Duck Hawk's nest at Danger Point just above Killisnoo as we came down and I went back later and got the female and three downy young, about a week old. The nest was under a clump of alder roots about 100 feet above the breakers on a limestone cliff. The young ones were hungry, so I chucked them into the fish basket and brought them along. They are regular pigs and eat greedily five times a day. They have almost doubled in weight in a week. We have some good photos of them already and if they thrive, as they give every promise of doing, we will get a whole life series of them "a la Finley." I have had lots of fun with them. A sea voyage just improves their appetite.

While we were crossing the island the rest of the party went on down to Red Bluff Bay and made camp. While they were unloading they got too much in the skiff and when Littlejohn's 225 pounds listed a little, the boat capsized with our collecting chests, note books, etc. Stephens slipped just as he was carrying his chest ashore and got a lot of his plates and photographic material wet. That night the tide took a crazy notion to call on them and the next morning their cornmeal, sugar, etc., was wet. They had cautioned *us* to be careful!

Glacier Bay, Alaska; July 4, 1907.—Well, this is the "Glorious Fourth," and it is raining here so that I haven't been able to stick my head out all morning. Have been trying to straighten out accounts with my neglected note book this morning. It is a good thing that we have a rainy day once in a while or my note book would be more neglected than it is.

There are lots of things here. This is the first place we have struck that we have found enough to keep us busy. The tent is full of specimens and they don't dry readily either. I counted up last night and found that we had 628 birds and mammals (332 birds and 296 mammals). I think that this should be very gratifying to the "bird fiend." I have prefered land birds to water birds but sometimes there was little choice. Well, I must go out and "lassoo" an iceberg and tow it in so we can have some ice cream for dinner, and I'll finish this later.

Ice cream was all right, but Littlejohn had to sit under an umbrella while he ground it out.

When we were at Hooniah we all went up on the mountain (2600 feet) and I staid over night and trapped while Hasselborg went bear hunting and Stephens and Littlejohn came back to camp. Stephens got one Ptarmigan. It was a male about one half winter and one half summer plumage. Stephens flushed him from a clump of scrub hemlock near the summit. I saw one the next morning about three o'clock, but he was whizzing off down the mountain side. They were very conspicuous and consequently lying low. We didn't get any more.

I saw several Leucosticte and had two good shots at one but failed to get him. It was about four o'clock in the morning and I was about froze. I saw others but couldn't get to them as they were on rock slides among cliffs that I couldn't hang on to.

I had a waterproof (?) canvass but there was nothing to make a fire out of and it snowed and blew that night. My canvass leaked, I got wet and almost froze to death. I caught cold in the side of my head and was laid up for a week afterwards with an ulcerated tooth and you know I'm worse than useless when I have the toothache! And when I was laid up here a bear had to come along and I couldn't get out to join in the killing.

Well, I got two big Microtus (178 and 175 mm.) and two shrews in my traps, and hunted from three o'clock in the morning till about eight; then I started down. I got off the trail on the way down and was climbing around in a big patch of windfalls when a bird hopped up and sat on a log and looked at me, I saw that it was something new to me and that it was exactly what Hasselborg had seen the day before. Well, I got him and concluded that it was a pine grosbeak! Well, I got three males and three females before I got out. I only saw nine birds, but thought I would take all that came handy. One male was in the bright red plumage. They were all in breeding condition but they are hard things to put up. I see that Bailey says the Alaska Pine Grosbeak is restricted to the interior. What would this be apt to be?

We packed up the next day and came over here just north of Bartlet Cove. The Indians came over one morning early and said that their dogs were after a bear. Hasselborg and Littlejohn went with them and after chasing around thru the woods for about an hour, in which they had separated, they finally came onto the bear in a thicket of alders. The bear charged upon them and the Indian that had a gun turned and ran without shooting. The other Indian had no gun so he started too. Littlejohn was at the tail end and saw the Indians and the bear coming. He sneaked behind a tree and shot the bear thru the shoulders just as she was reaching out to grab the Indian. The bear turned around and it took three more shots to finish her. She had a cub which they got; the dogs had been worrying her all night so she was "red hot." It was a brown bear about five feet, eight inches long and the fur has faded to a dirty yellow on the back. Hasselborg has killed four bears since he has been with us. He had two coming at him at once on Chichagof. It took three shots to kill one and five to stop the other, and when he quit he only had two shells left. They were male and female, and this is the breeding season; so that was evidently what made them so ugly.

Yesterday we tried to go up to the bird islands about fifteen miles from here. They are right in front of Muir Glacier. It is throwing out so much ice that we couldn't get to the islands, but will try again later. We got out and the fog came down so that we couldn't see where we were and got caught in an eddy. The ice began to pack and we almost lost the canoe before we knew it. We finally got to

where the ice was so thick that we couldn't get thru at all, and I almost froze before we got out. There were lots of cormorants sitting on the ice which reminded me very much of that plate of the Pelagic Cormorant in Bailey's "Hand-Book."

Marbled and Kittlitz Murrelets are common here but we can not find their breeding ground, and judging from birds we got they have either bred some time ago or are just going too.

My Duck Hawks are great pets and are growing rapidly. They come into the tent and beg for bodies now, and they have a tremendous appetite. One gained two ounces a day for four days, and is doing better now.

July 8.—We went up to the island on the 5th. Glaucous-winged Gulls Pigeon Guillemots, and Pelagic Cormorants were breeding on the island.

The Muir Glacier has retreated on account of an earthquake four or five years ago until the face of it is about twice its former size. The discharge of ice is at least twice as great and the Marble Islands are right in front of the glacier so that they have ice floating thickly about them all the time. This change in temperature has evidently had a noticeable effect on the nesting of the birds on the islands. The cold has evidently driven them elsewhere as we found lots of signs that showed that the birds had formerly bred there abundantly; the Indians haven't exterminated them because they can't get there on account of the floating ice. A few Tufted and Horned Puffins were nesting in crevices in the rocks. I thought that I had got the "Old Boy" himself when I shot one of those Horned Puffins and I was sure of it when it grabbed hold of me with that "tin-shears" beak. We saw a pair of Parasitic Jaegers chasing a Duck Hawk about the islands. Several species of land birds were seen. Townsend Sparrows breed as also do Alaska Hermit Thrushes. Saw also Savanna Sparrow, Least Sandpiper and Barn Swallow. The Pelagic Cormorants were just beginning to lay, as I saw four nests with one egg in each. They make a particularly groaning sound when on the nest that sounds like some one moaning in pain. We could hear it quite a ways out before we landed and couldn't imagine what it was.

I took in three adult Pelagic Cormorants as they were in fine breeding plumage. They were pretty tough to put up but not nearly so bad as the Horned Puffins. I got five Kittlitz Murrelets on the way, so I haven't been idle since I got back.

We will probably spend ten days or so on the other side of the bay and then go out on the outside of Chichagof near Cross Sound. I suppose that will be about the end of my collecting as I expect to leave Juneau for Stanford about August 10.

CATALOG OF BIRDS COLLECTED BY W. W. BROWN, JR., IN MIDDLE LOWER CALIFORNIA

By JOHN E. THAYER and OUTRAM BANGS

FROM the autumn of 1906 until the spring of 1907 Mr. W. W. Brown, Jr., was engaged in collecting in Lower California in the interests of the Thayer Museum at Lancaster, Massachusetts. During this period his headquarters were at San Quintin, from which place he made excursions into the surrounding country.

At San Quintin, Brown made large collections, chiefly of sea birds, but these we do not list as they contained species mostly well known from the region.

In October and November he visited Rosario, latitude 30°; and in late February, March and early April he worked south a little past latitude 29° or almost opposite Cerros Island, collecting at Santana, Rosarito, San Andris and San Jabier. It is the specimens secured at these points, south of San Quintin, that we list in the present article. The region is an interesting one, not only because several subspecies are peculiar to it, but because in other cases it appears to be where the Cape St. Lucas form intergrades with that of southern California or northern Lower California. Some of the records also extend the ranges of Cape forms to well up the peninsula, as in the case of the Violet-green Swallow and the Ash-throated Flycatcher.

A good deal has already been published on the birds of this general region by Anthony, Bryant, Belding and others, but by far the most important contribution to our knowledge of the ornis of Lower California is Wm. Brewster's "Birds of the Cape Region of Lower California."[1] In this carefully executed work the author gives the range of every species and subspecies so far as known, and references to the writings of all other ornithologists who have dealt with Lower California birds.

Puffinus opisthomelas Coues. One male, San Jabier, April 2, 1907.

Parabuteo unicinctus harrisi (Aud.). Two males, Rosarito and Santana, March 3 and March 19.

Accipiter cooperii mexicanus (Swains.). One male, Rosario, Nov. 4, 1906, and one female, November 25.

Accipiter velox pacificus (Lesson). One male, Rosario, November 19.

Buteo lineatus elegans (Cassin). One adult female, November 9.

Cerchneis sparveria peninsularis (Mearns). Four specimens, both sexes, Rosario, November, and Santana, March 18. The latter, an adult male, is a pale and small example, its wing measuring but 167, and is an extreme example of *peninsularis*.

Lophortyx californicus vallicola (Ridg.). Eighteen specimens, Rosario, October and November, and San Jabier, San Andris and Rosarito, February and March. Nests with eggs were taken at San Jabier, March 27 and April 1.

Oxyechus vociferus vociferus (Linn.). One female, Rosario, November 6.

Zenaidura carolinensis carolinensis (Linn.). Two specimens: a female, Rosario, November 6, and a male, Santana, March 18.

Melopelia leucoptera (Linn.). One adult female, Santana, March 20.

Chamæpelia passerina pallescens Baird. One adult female, Santana, March 14.

Geococcyx californianus (Less.). Three specimens, both sexes, Rosario, October and November, and Santana, March.

Colaptes chrysoides brunnescens Anthony. Eight specimens—one ♂ from Rosario, November 26; seven, both sexes, from Santana, San Jabier, and Rosarito, March.

These skins are a trifle darker brown on the upper parts than in specimens from Arizona and Sonora in corresponding plumage, and, if *brunnescens* can be maintained as a subspecies, would probably all be considered as belonging to it.

Sphyrapicus ruber (Gmel.). One female, Rosario, November 2.

Dendrocopus scalaris lucasanus (Xantus). Five adults, both sexes, Santana and San Andris, February and March.

1 Birds of the Cape Region of Lower California, Bulletin of the Museum of Camparative Zoology, Vol. XLI, No. 1, September, 1902.

Asio wilsonianus (Lesson). One female, Rosario, November 14.

Bubo magellanicus pacificus (Cassin). Two specimens, male and female, Rosario, November 18. These were, without doubt, migrants or winter visitors, as the breeding bird of the region is *B. m. elachistus*.

Bubo magellanicus elachistus (Brewster). Three specimens, both sexes, Rosario, November. The five skins of Great Horned Owls listed above were carefully identified for us by Nelson and Oberholser, and there is no question of the correctness of the identification. Nelson took *B. m. elachistus* in the same general region in the summer, and it would appear to be the breeding form of the Peninsula of Lower California north at least to San Quintin.

Speotyto cunicularia hypogæa (Bonap.). Eight specimens, both sexes, Rosario, November, and San Jabier, March.

Strix pratincola Bonap. Seven specimens, both sexes, Rosario, October and November, and San Andris, February 29. This latter bird, a female, had an egg in the oviduct nearly ready to be laid.

Phalænoptilus nuttallii nitidus Brewster. Two adults, male and female, Rosario, November 1 and November 12.

Calypte costæ (Bourc.). Four adults, three males and a female, San Jabier and Rosarito, February 22 to April 1.

Pyrocephalus rubineus mexicanus (Scl.). One female, Santana, March 24.

Empidonax difficilis Baird. Two males, Santana, March 18 and March 20. These are probably migrants as they are certainly referable to *difficilis* and not to *cineritius*.

Empidonax griseus Brewster. Two males, Santana, March 12 and 14.

Sayornis saya (Bonap.). Four adults, both sexes, San Jabier, San Andris and Rosarito, February 23 to March 30.

Sayornis nigricans (Swains.). Three adults, males, Santana, March 11 to March 20. These birds have the under tail coverts nearly wholly white and represent *S. nigricans semiatra* (Vigors), if that form is recognized as a subspecies. We, however, are rather inclined to agree with the opinion of Brewster that the characters are too slight. Like Brewster's skins from the Cape Region, these Santana specimens have rather large bills.

Myiarchus mexicanus [2] **pertinax** (Baird). Thirteen adults, both sexes, Rosarito, Santana and San Jabier, March. These skins are all referable to the Cape St. Lucas form, differing from true *mexicanus* in grayer back and nape and much larger bill.

Tyrannus vociferans Swains. One adult female, Santana, March 16.

Otocoris alpestris enertera Oberholser. Nine adults, both sexes, Rosarito and San Jabier, February and March.

Mimus polyglottos leucopterus (Vigors). Twenty-six adults, both sexes, Santana, San Jabier and Rosarito, March and April.

Oroscoptes montanus (Towns.). Twenty-nine specimens, both sexes, Santana, Rosarito, San Jabier, February 23 to April 1.

Brewster states that two specimens examined by him from La Paz were "larger and much deeper colored" than birds from Texas. The present series shows some variation in color, but on the whole we can see no decided difference either in size or color between it and specimens from New Mexico, Texas, etc., when skins in the same condition of plumage are compared.

2 Osgood (*Auk*, Vol. XXIV p. 219, April, 1907) has shown from his examination of Kaup's type that the Ash-throated Flycatcher is *M. mexicanus*, and that *M. cooperi* is the name of the bird we have been calling *Myiarchus mexicanus*.

Toxostoma cinereum mearnsi Anthony. Twenty-four adults, both sexes, Rosario, San Jabier, and Santana, November, March and April. The skins from Rosario are of course true *T. c. mearnsi*; those from the more southern localities—San Jabier and Santana—show slight signs of intergradation toward true *cinereum* of the Cape region, especially in the black spots on the under parts being rather less purely black, more brownish.

Toxostoma rediviva helva Thayer and Bangs. *Toxostoma rediviva helva, Thayer and Bangs, Proc. New Eng. Zool. Club, Vol. IV, pp. 17-18. April 30, 1907.* One hundred and thirty-four specimens, both sexes, Roario, October 25 to November 26.

Toxostoma lecontei arenicola Anthony. Thirty-two specimens, adults and young of both sexes, San Jabier, March 27 to April 7. This Thrasher must breed very early in the season as nestlings at this date were fully fledged, many of them full grown. All young birds including those practically full grown have the bill much shorter than the adults. In color the young are much like the adult except in being rather more fulvous, especially on belly and under tail coverts, and less "bleached." The adults are all in rather worn and faded plumage.

Planesticus migratorius propinquus (Ridg.). One female, Rosario, November 15.

Polioptila cærulea obscura Ridg. Three adults, two males and a female, Santana and San Jabier, March 14 to April 1.

Polioptila californica Brewster. Four adults, three males and a female, Santana and Rosarito, February 24 to March 17. These skins show some signs of being intermediate between *P. plumbea* and *P. californica*. The white edge of the outer rectrix is wider than in true *P. californica*, tho it is black next the shaft, and the gray of under parts is darker than in *P. plumbea* more nearly as in *P. californica*. The color of the back is about intermediate between that of typical examples of the two forms, being darker than in *P. plumbea*, but not so dark nor so slaty as in *P. californica*.

Heleodytes brunneicapillus affinis (Xantus). Fifteen specimens, adults of both sexes, Santana and San Jabier, March. This series represents a form decidedly nearer to *affinis* than to *bryanti*. In only one character do these skins approach *bryanti* and that is in the spotting below which is usually heavier than in Cape St. Lucas specimens; still some skins in the series differ even in this respect but little from true *H. b. affinis*. Anthony (*Auk*, Vol. XII, p. 280, 1895) says he would expect to find intergradation taking place between the two forms at no great distance south of San Fernando, but that skins from that place are nearer *bryanti*. A nest with three fresh eggs was taken from a cactus, three feet from the ground, March 17 at Santana.

Thryomanes bewickii cerroensis (Anthony). Ten adults, both sexes, Santana, San Andris, San Jabier and Rosarito, February 27 to March 31. These are in all respects quite like skins from Cerros Island, and the Cerros Wren is therefore not an island form but occurs also in the adjacent parts of the peninsula of Lower California. Nelson and Oberholser have examined this series and agree with us that the specimens are identical with Cerros Island examples.

Salpinctes obsoletus obsoletus (Say). One adult female, Santana, March 19.

Auriparus flaviceps lamprocephalus Oberholser. Four adults, three males and a female, Santana and Rosarito, March. These all are referable to the Cape St. Lucas form, being small, the wing in the series measuring: ♂ 49.5, 49.5 and 51; ♀, 48.5.

Aphelocoma californica obscura Anthony. Two adults, male and female,

Santana, March. These two skins are not typical, but are tending toward *hypoleuca* of the Cape region.

Lanius ludovicianus gambeli Ridg. Eight adults, both sexes, Santana, Rosarito and San Jabier, February 27 to March 30. These skins were identified for us by Nelson and Oberholser, who pronounce them perfectly typical. Gambel's Shrike appears to be the breeding form of the whole peninsula of Lower California.

Vireo vicinior Coues. One adult female, Santana, March 13.

Vireo bellii pusillus (Coues). One adult male, Santana, March 17.

Ampelis cedrorum (Vieill.). Two males, Santana, March 14 and 20.

Phainopepla nitens (Swains.). Three adults, both sexes, Santana, March.

Tachycineta thalassina brachyptera Brewster. Three adult males, Santana, March 11. These are extreme examples of the Cape St. Lucas form, measuring respectively—wing 107, 104, 103.5; tail 42.5, 42, 43. This record establishes the fact that the form extends at least half way up the peninsula.

Anthus pensilvanicus (Latham). One adult male, Santana, March 24.

Helminthophila celata lutescens Ridg. Three specimens, two males and a female, Santana and San Jabier, March 11 and March 28.

Geothlypis trichas arizela Oberholser. Two adults, male and female, San Jabier, March 28 and April 4. The plumage is quite abraded in both, and they have the appearance of having been breeding birds.

Wilsonia pusilla chryseola Ridg. Two adult males, Santana, March 19 and 20.

Scolecophagus cyanocephalus (Wagler). Three males, Rosario, November.

Icterus cucullatus nelsoni Ridg. One adult male, Santana, March 2.

Icterus parisorum Bonap. Three males, Santana, March 16 to 22.

Agelaius tricolor (Aud.). One male, Rosario, November 11.

Agelaius phœniceus neutralis Ridg. Two males, Rosario, November.

Sturnella neglecta Aud. Five specimens, both sexes, Rosario, November, and Rosarito and San Jabier, February and March.

Astragalinus psaltria hesperophilus Oberholser. One adult female, San Jabier, March 27.

Carpodacus mexicanus frontalis Say. Two adults, male and female, Santana, March 20 and 31. The adult male is in color perfectly typical *frontalis*, with the red portions of the plumage restricted exactly as in the average male of that form. Its wing measures 74 mm.—perhaps a trifle short for *frontalis;* but Mr. Brewster found so much variation in his series from Cape St. Lucas of *C. m. ruberrimus* in measurements that he considers this character cannot be relied upon to distinguish the form. The wing of the female measures 74 mm., also—about the average length in any large series of *C. m. frontalis*, female.

Calamospiza melanocorys Stejneger. One male, Santana, March 31.

Passerculus sandwichensis alaudinus (Bonap.). Two specimens, male and female, Rosarito, February 25.

Amphispiza bilineata deserticola Ridg. Fourteen adults, both sexes, Rosarito, San Jabier, Santana, February 26 to April 1.

Amphispiza belli cinerea Towns. Seventeen adults, both sexes, San Jabier, Rosarito, February 22 to March 31. To secure a good series of this very local and strongly characterized subspecies was one of Mr. Brown's particular missions to this region. He found the bird to be not very common at the places at which he collected.

Spizella socialis arizonæ Coues. Two adults, male and female, Santana, March 20 and 24.

Spizella atrogularis (Cabanis). One adult male, Santana, March 19.

Spizella breweri Cassin. Ten specimens, both sexes, Santana, San Jabier and Rosarito, February 26 to April 1. Mr. Brown did not take *Spizella pallida*, tho it probably occurs in this region in winter.

Melospiza cinerea cooperi Ridg. One specimen, Rosario, November 18. This bird, a migrant, of course, is not typical, having probably come from a region where *cooperi* intergrades with some other form.

Zonotrichia[3] **leucophrys leucophrys** (Forster). Three specimens, adult male and female, and young male, Rosarito, and San Jabier, March 2, 27 and 29.

Zonotrichia leucophrys gambelii (Nuttall). Seven specimens, adults and young of both sexes, Rosarito and San Jabier, February 25 to Aprll 2.

Oreospiza chlorura (Aud.). One male, San Jabier, March 30.

Pipilo crissalis senicula (Anthony). Seven adults, both sexes, Santana and San Jabier, March. Some skins in this series have the throat distinctly paler posteriorly, while others have it uniform; all are whitish in the middle of the belly, and intergradation with *P. c. albigula* is plainly indicated.

Boston, Mass.

SOME COLORADO NOTES ON THE ROCKY MOUNTAIN SCREECH OWL

By ROBERT B. ROCKWELL

DURING the long dreary winter months when the countryside is shrouded in snow and ice and when most of our feathered friends are taking their annual vacation in the sunny southland, there is one little fellow who is constantly with us and who, tho very inconspicuous to the casual observer, is sure to be found by the lonesome bird student who is disconsolate enough to brave snow and cold for a short visit with the birds along the well wooded streams in the vicinity of Denver.

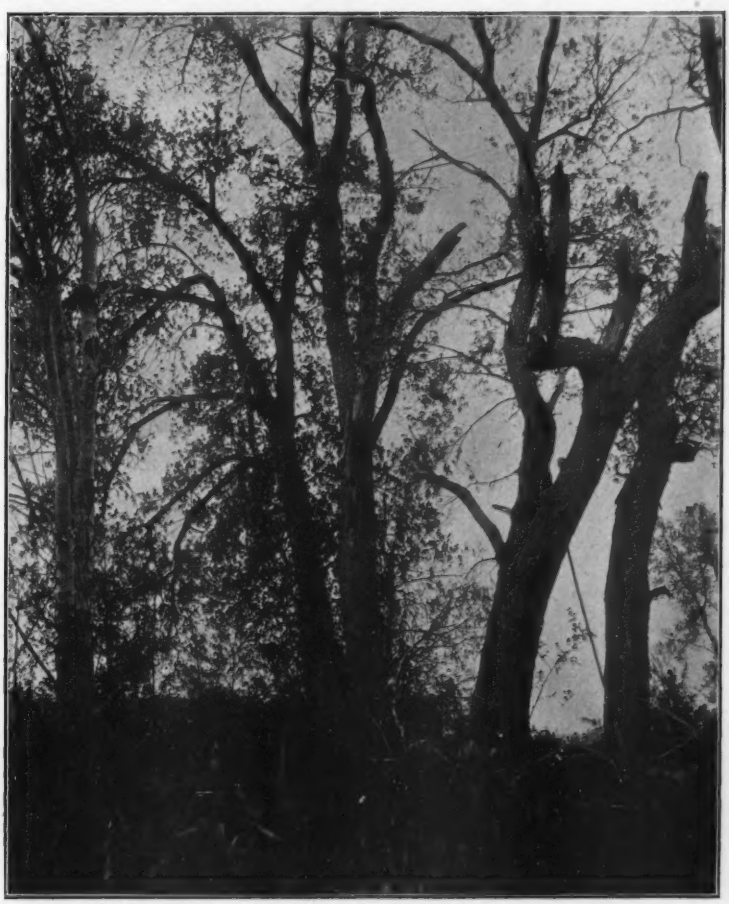
The Rocky Mountain Screech Owl (*Megascops asio maxwellæ*)—for this is the feathered gentleman to whom I refer—is a resident thruout the year all along the eastern base of the foothills in the north central part of Colorado, but his hunting and breeding grounds are closely restricted to the well wooded creek bottoms, the only locations in this sparsely timbered region which afford him proper food, nesting sites and means of concealment.

As to whether this bird performs a slight north and south movement at migration periods, there seems to be a difference of opinion. Some observers declare that Megascops leaves its summer home around Denver, and moves south as far at least as Colorado Springs (75 miles), and its breeding grounds are occupied as a winter home by migrants from farther north. Others claim that it spends the entire year in the same haunts, laying its eggs in one of the many cavities occupied during the winter. Whichever view of the matter is correct, it is a fact that thruout the year the "owl stumps" so dear to the memory of every bird student, are occupied by these birds, and it is seldom indeed that a good sized grove of aged timber, with a few dead stumps scattered thru it, will not contain a pair of Screech Owls.

A very dull and lifeless bird you would undoubtedly call it as—your arm in-

3 We are of course aware of the name *Hortulanus* Vieillot (see ALLEN, Bull. Am. Mus. of N. H. Vol. XXIII, p. 360, 1907) that by first species rule replaces *Pipilo* and by elimination *Zonotrichia*, but until it is formally alloted to one or the other, we prefer using the old names.

serted in an old flicker's nesting cavity—you gently stroke the brooding bird with your hand, without a sign of fear or anger on the part of the bird; but your preconceived ideas of its nature will receive a rude shock when you carefully slip your hand under it to remove it from the eggs, and as the long needle-like claws sink deep into your hand and you pull the bird forth from the hole with its red mouth open, its bill clicking defiance and its great yellow eyes flashing anger, you will



A TYPICAL NESTING SITE OF THE ROCKY MOUNTAIN SCREECH OWL

humbly admit that here at last you have found a Westerner with the true old Yankee fighting blood; and as you endeavor to remove those vice-like claws from some badly punctured fingers you will learn that bull-dog tenacity is also among the little fellow's characteristics.

With the first faint signs of spring and often while the wet spring snow is still

on the ground, this owl begins preparation for its nest building, which, by the way, is simple in the extreme. The month of April is the usual time for fresh eggs; and to be more precise than this as to date is hardly possible, as I have found fresh eggs as common during the first week of April as the last, and I am led to believe that the nesting date is governed largely by climatic conditions. Moreover, the nesting season is not confined to the month of April by any means, and nests with eggs have been found as late as the 30th of May. This is, however, an extreme date and is undoubtedly the result of an accident of some kind.

HOME OF ROCKY MOUNTAIN SCREECH OWL; WALL CUT AWAY TO SHOW NEST CAVITY

As has been stated before the nesting site is invariably along the well wooded watercourses and in more or less dense groves of cottonwoods and occasionally willow or box-elder. A peculiar characteristic of this bird is its predilection for sluggish or stagnant water, and one of the prerequisites of a model nesting site is a small slough or pool within a short distance of the nest hole. I am at a loss to know why this is so, unless it is that frogs and crawfish form no inconsiderable portion of the bird's food, and close proximity to a source of food supply may be a solution of the problem.

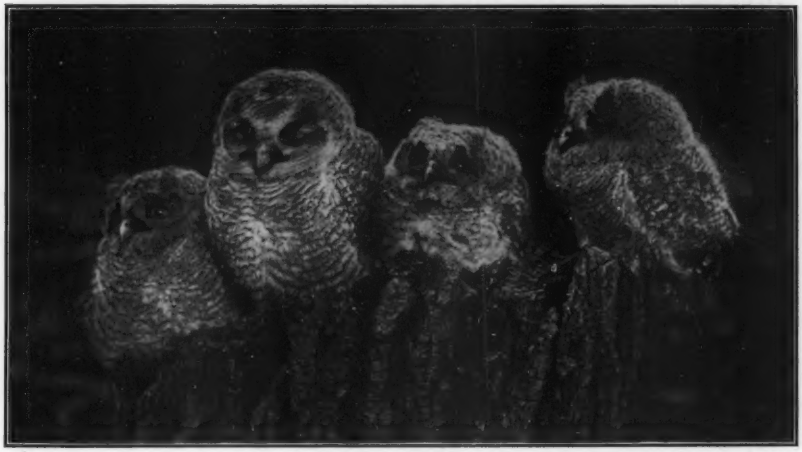
The very great majority of nests are found in cottonwood trees. This is probably due to the fact that this tree greatly predominates along all the foothill streams, and it is the variety most commonly used by the Red-shafted Flicker, the deserted excavations of which the Screech Owl nearly always occupies. However, natural cavities are occasionally resorted to; but owing to the nature of the trees these are found mostly rotting out in this manner. in box-elder or black willows, the cottonwood rarely Captain Bendire in his incomparable work on North American Birds, states that the birds occasionally lay in the deserted nests of the Magpie.

The size of the cavities and entrances to the same naturally vary greatly. The Screech Owls do not excavate at all, but simply preempt the cavities as they are. It is extremely rare, however, that a nest is found in a cavity which is exposed to the elements, great care evidently being used to select a cavity which is more or less

sheltered. The eggs are usually laid on a bed of refuse, such as wood dust and the accumulations of a like nature (which are sure to be found in a tree cavity) over which a thin layer of feathers of small birds has accumulated thru the feeding of the owls, but I do not think that any attempt is made by the birds at nest building. The nests are always littered with the remains of small creatures—the food of the brooding female—including frogs, craw-fish, small birds and rodents, and occasionally a rabbit. The blood-stained eggs bear mute witness of the bloody nature of the birds' feasts.

The height of the cavities above the ground varies from five to forty feet, but the majority are between ten and twenty feet. The average height of twenty-five nests examined by the writer is 13½ feet. Extremely high holes are rarely if ever used by the birds.

The great majority of full clutches contain four eggs, tho occasionally three or five are deposited. In the twenty-five sets it has been my good fortune to examine in the nests, the following sets were found: One of 2, five of 3, fifteen of 4, two of



YOUNG OF ROCKY MOUNTAIN SCREECH OWL NOT YET ABLE TO FLY

5, one of 6 and one of 7. The set of 2 was a second clutch, the first set of 4 having been taken 23 days previously to the date upon which the set of 2 was found in which incubation was about a fourth advanced. The comparatively large number of sets of three conveys a wrong impression, and is probably due to a little over-anxiety to collect the eggs, not giving the parent sufficient time to complete the clutch. I believe one in fifteen sets would be nearer the proper ratio of sets of 3 and 4. The set of 6 was laid by a particularly prolific female which had laid sets of five on the two preceding years; while the set of seven I cannot account for unless it was laid by two females, which is very improbable. This set was found May 30th, two birds were flushed from the cavity, and all seven eggs were addled. These two last mentioned sets and one set of six collected by Prof. A. H. Felger, are, so far as I can learn, the largest sets of this sub-species on record.

Quoting from Bendire, "The eggs of the Rocky Mountain Screech Owl are pure white in color and moderately glossy, the shell is smooth and finely granulated. In shape they vary from oval to a broad elliptical oval, some being de-

cidedly more elongated than any other eggs of the genus Megascops I have seen." Twenty eggs in the writer's collection average 1.17 by 1.43 inches; the smallest 1.12 by 1.35 and the two largest 1.15 by 1.53 and 1.21 by 1.50 inches. A set of four mentioned by Davie in his "Nests and Eggs of North American Birds" averages 1.21 by 1.49 and contains one egg which measures 1.26 by 1.54, the largest egg I have known of.

The eggs are laid every other or every third day and incubation begins as soon as the first egg is deposited. The young are consequently hatched on successive days and it is rare indeed that a brood of owlets is found which does not contain a weakling bird, smaller, more scrawny, in poorer flesh, and with less animation than his brothers and sisters.

The newly hatched nestlings are covered with a coat of beautiful fine white down, and with their weak, subdued little "cheep" and queer shaped heads are quite attractive little creatures. As they grow larger and stronger this baby beauty rapidly leaves them, but they still retain the soft and not unmusical quality of voice until they begin to feather out. The young are among the most helpless of nestlings and their development in the nest is exceedingly slow. One nest that contained three young on April 28th, still contained two birds on May 26th that were fully fledged but could not fly well.

ADULT MALE ROCKY MOUNTAIN SCREECH OWL

As soon as the young leave the nest cavity they take to the cottonwood trees, doing most of their flying at night and remaining perfectly quiet during the day, and their resemblance to the branches among which they sit (or to an old Oriole's nest) is remarkable.

The brooding females are very close sitters and it is very seldom that one will leave the eggs without being removed by hand. However, if a bird is disturbed frequently, she will soon learn to leave the nest as soon as the tree is struck, and will usually disappear from sight in the dense underbrush. When the bird is removed by hand and liberated she will usually fly to a nearby limb and voice her displeasure by sharp snapping of the bill and low moans; and with body thrown forward, ear tufts raised and eyes blazing her attitude is very menacing. On one or two instances where incubation was advanced I have known the female to return directly to the nest when liberated from the hand.

The female performs all the duties of incubation, her food being brought to the nest by the male, who, judging from the remains in and around the nest, is at all times a bountiful provider. This gentleman during the process of incubation can usually be found in another cavity not far distant from the nest, which is usually well filled with provisions. He is very careful, however, that no roving ornithologist shall lay hands on him, and usually the first rap on the tree will bring his little round head to the cavity entrance, and after surveying the intruder for a moment with a surprised expression, clumsily launches himself on the air and with short awkward wing-beats quickly disappears from sight.

When the young have left the nest, the parents join the brood among the trees and during the late summer and early fall are seldom seen owing to their quiet and seclusive habits; but as the cold, frosty nights approach the birds prepare the numerous cavities with warm linings of feathers of the smaller birds, and it is in these cosy winter homes that Megascops is found thruout severe weather.

YOUNG NEARLY FULL-FLEDGED ROCKY MOUNTAIN SCREECH OWLS

The birds are of a rather solitary nature and rarely more than one pair is found in a grove, thruout which will be seen extensive evidences of their occupancy. I have never found two nests within a half mile of each other and ordinarily they will be separated by twice that distance.

The range of this subspecies as near as can be ascertained has its southern limit in the vicinity of Colorado Springs, where Mr. C. E. Aiken, the discoverer of *Megascops asio aikeni*, considers them as regular winter residents, being replaced from there south by *M. a. aikeni*. Both Dennis Gale and W. W. Cooke state that *M. a. maxwellæ* rarely ascends higher than 6000 feet, which would preclude the possibility of its extending more than a few miles up into the foothills, and the most easterly record is recorded by Cooke as "30 miles out on the plains", probably referring to the Loveland, Colorado, record of W. G. Smith. The northern limit, according to Bendire, is Fort Custer in southeastern Montana, which tho a very early record, I believe still stands. From this it will be seen that *maxwellæ* is strictly a foothills form, inhabiting a long, narrow strip of country running in a general north and south direction and closely adhering to the base of the eastern foothills of the Rocky Mountains.

Denver, Colorado.

A COLLECTING TRIP IN KOREA

By MALCOLM P. ANDERSON

I SHOULD like to give THE CONDOR a specific list of the birds seen and obtained by me in Korea, but owing to my own ignorance, and for other reasons, this is not possible, so I content myself with the following account of one of my journeys, with some indications of what the bird fauna is like.

On the 29th of October, 1906, I left Seoul for the region sixty or seventy miles northeast of there. I had heard that there was some forest out that way, and longed to find it. In company I had my Japanese assistant, Orii, and a Korean "boss." Four big and dirty coolies carried my outfit of food, blankets, traps, and ammunition for a month's collecting. The coolies had promised to travel twenty miles a day, and had been paid for a day in advance for that distance, but I saw soon after we started that they would not go so far, so at a village ten miles on our way I hired a fifth fellow. But this did no good; they went no faster. At nightfall we were but fifteen miles from Seoul. We had passed that day thru the small cultivated valleys, and barren, dry, and much eroded hills which surround the capitol. The only birds we had seen were a crow, some kites, and the magpie (*Pica rustica* I believe), which is very common in Korea.

Orii and I spent that night in a little room at a village inn. As in most such places the walls were of mud much blackened with smoke, and tapestried with sooty cobwebs; the floor was of mud and stones covered with oiled paper. The sole entrance was thru a little door which served as window too, being a framework covered with paper.

The following day I sent the coolies about their own business, and engaged two horses to carry my things. When he came to pack, the driver objected that there was too much for two horses; I must have three. This was not true, but as he refused to load all, I engaged a by-standing coolie to pack something, and that day we proceeded much faster.

About twenty miles from Seoul I noticed a decided improvement in the country. The pines and bushes on the hills became more plentiful, water more abundant, and the whole aspect less desolate. With the exception of one large gray shrike (*Lanius excubitor?*) I saw no new birds this day.

The morning of our third day out there was a slight rain, and I was powerless to get the horse driver to start, so we were compelled to wait for the rain to cease, which it did about noon. Then the driver wanted me to pay him for the previous day; but this I refused to do because I felt he intended to abscond as soon as he got his money. I paid his bill at the inn, but still he refused to go, but I held out, and at last we started at a good pace, and in the evening reached a village called Penchan, fifty miles northeast of Seoul. Nearby here I observed some high hills lightly wooded with pines in the canyons, and with some brush on the ridges. I determined to stop here a few days, and explore these hills. So we obtained the best room in the best inn, and unloaded our packs there. The room proved to be nine feet square, with a beam along one side, by way of shelf, which was just the right height to hit one's head against when one rose from a stooping position. We didn't stay long enough to accustom ourselves to that beam. This room was lighted by two doors. I found that by shoving my table close to one of them I could see well enough to skin, during the lightest hours, but the more satisfactory way was to skin by lantern-light in the evening. We lived on canned goods largely, but also

bought boiled rice from the inn, and made bannocks in the frying pan over a charcoal fire.

The commonest bird at Penchan was the species of *Emberiza* found in China and Korea; there were several other sparrows but I cannot name them; a nuthatch (*Sitta*) inhabited the pine trees, and a species of *Acredula* with a wholly white head was seen in the woods. About the bushes and tangled vines at edges of paddy fields we sometimes found large flocks of a little bird I called the "Rosy-tinted Tit." It is about the size of our Plain Titmouse, but with a longer, graduated tail. The ground-color of head and body is dull gray-brown, but in some lights it has a distinctly rosy tinge, especially on the breast. A thrush much like our robin was obtained, and a specimen of a blue flycatcher (*Tarsiger*). Some dippers (*Cinclus pallasii*) were seen, and one preserved. Going in bands of ten to twenty-five, was a gray magpie (probably *Cyanopica*). It has a blue-black head and is so shy that one seldom gets more than one chance to shoot at the flock. The same gray shrike mentioned above was seen several times here, and obtained. Other birds were the red-bellied woodpecker (*Dryobates subcirris*), a *Falco*, a *Circus*, and a small snipe.

On November 4th, I moved 15 miles northeast to a town called Kimhoa (which may be found on the best maps). I had been led to think that there was more woods there, but on arrival found only a small town with scarcely a tree in sight. We found, however, on exploration several hilltops grown with pines and oaks, and these we called, by courtesy, "the woods." At this new town we had better quarters, and were able to accomplish more. Altho most of our time was spent in trapping mammals, our chief object, we secured a number of birds in addition to those taken before.

A small red-bellied woodpecker (*Dryobates japonicus*), a green woodpecker (*Picus canus*) and a small black-and-gray woodpecker (probably *Dryobates*) were found here. Also a ptarmigan (*Lagopus*) and some mallard, which we used to persuade the Japanese garrison to let us have some charcoal. Then there was a hawfinch (*Coccothraustes*), a purple finch (*Carpodacus*), and a greenfinch (*Chloris?*). One day Orii brought in an eagle (*Aquila*); and a waxwing (*Ampelis*), a wren (*Troglodytes*), and the creeper (*Certhia familiaris*) were among the additions to the collection.

In some valleys I occasionally saw cranes (*Grus* sp.) but did not try to secure them. Once I saw a large white swan which I suppose was *Cygnus musicus*. Later these swans became plentiful and were on sale in the markets at Seoul, Fusan, etc. At Kimhoa geese (*Anser segetum?*) were often seen flying over. Later when I was farther south they became very abundant indeed along the larger streams. Korea is a paradise for the duck and goose hunter. A little quail (*Coturnix*) was seen once or twice, but not secured in this locality; and one of the very commonest birds was the Siberian tit (*Parus* sp.). At the end of November we forsook this part of Korea and went southward.

The Koreans are a kind, simple-hearted, and hospitable people. They are uneducated it is true, but not so ignorant as some would have us think. They generally treated me as if I were a prince.

Chefoo, China.

THE GAMBEL PARTRIDGE IN CALIFORNIA

By M. FRENCH GILMAN

IN response to a query in a recent CONDOR concerning the western limit of the range of *Lophortyx gambeli*, I will give some of my observations.

Beginning at Fig Tree John's place, 197 feet below the sea level, as the most easterly point of my quail hunting I found the birds very numerous all over the western part of Salton sink. At Mecca, Thermal, Coachella and Indio, settlements in the Coachella Valley all below sea level, the birds are very common and do considerable damage in the vineyards. Along the southwest part of the valley next the Martinez Mountains are the Indian villages of Agua Dulce, Alamos, Martinez and Toros, where the birds seem more numerous, if anything, and much tamer, as the Indians hunt them very rarely. The dense mesquite and screw-bean thickets provide a safe retreat and with the Crissal Thrasher and Abert Towhee they form a happy, if hot, family.

At Indian Wells, near the rim of the ancient sea, I saw a few flocks of this quail. Here they must go some distance for water as the well is the only known supply for several miles. But the birds may have their own source of liquid refreshment as I saw other species there; such as Leconte Thrashers, Abert Towhees, Phainopeplas, Saint Lucas Woodpeckers and Plumbeous Gnatcatchers.

At Palm Springs, altitude about 500 feet, *gambeli* is thoroly at home in the screw-bean and paloverde thickets. They are much hunted here and develop a faculty of escaping, that disgusts and baffles the hunter. A big flock is seen and pursued. They divide and Nimrod follows the larger portion which again divides and this process of elimination by division continues till the hunter finds he has been up against a vanishing fraction. If near a range the flock immediately takes to the hills and anyone who has once followed them up those sun-burned rocks is ever afterward in the sour grapes class.

From the old sea level westward, the desert gradually narrows and the altitude increases till San Gorgonio Pass is reached, altitude 2500 feet. W. G. Wright of San Bernardino has termed this northwest arm of the Colorado Desert a cornucopia, and from a naturalist's standpoint the name is well deserved. A former San Bernardino journalist, Kearny by name, once dubbed it a continental funnel, from the atmospheric activity sometimes displayed there. At suitable points along this narrowing arm of the desert are found small colonies of the Desert Quail as it is commonly called. At Whitewater they breed regularly and are found occasionally, or even regularly in small numbers, to within three miles of Banning, or six miles east of the San Bearnardino meridian. Banning seems the extreme western limit of their range; at least I have no knowledge of any seen west of that point. Here the characteristic desert plants such as *Yucca baccata*, *Dalea californica* and *Dalea schottii*, *Larrea mexicana*, and various cacti, give way to a more civilized flora.

To the north of the Coachella Valley is the Morongo range of mountains, the desert continuation of the San Bernardino range and separating the below-sea-level desert from a higher district which merges into the Mojave desert to the north. In this range the desert quail are found and all along the north desert slopes of the San Bernardino range as well, to nearly, if not quite, the San Bernardino meridian. At such points as Mission Creek, Morongo, Warren's Well, the "Pipes," Rattlesnake Canyon, Burn's Canyon, and Old Woman Springs the Gambel Partridge is at home. At points across the range north of Salton in the mining districts at

Twenty-nine Palms and Virginia Dale, as well as others toward Palo Verde and the Colorado River, is found this quail.

They range upward to at least 4000 feet and at favorable points are found in proximity to the Plumed Partridge (*Oreortyx pictus plumiferus*). At other places the Valley Partridge (*Lophortyx californicus vallicola*) joins in and the three species occupy the same territory. At Snow Creek at the north base of San Jacinto Peak I have shot the three species and carried them home in the same bag. Near Banning mixed flocks of *gambeli* and *vallicola* have been seen and the Plumed, or Mountain Quail as it is more commonly called, only a short distance away. In canyons at Palm Springs the three can be found, and on Pinyon Flats, altitude of 4,000 feet, lying about fifteen miles south of Palm Springs, I have seen the three species drink from the same spring in course of half an hour.

I have heard of hybrids between *gambeli* and *vallicola* being shot near Whitewater but know nothing positive about it. I have shot Valley Quail at Whitewater and at Palm Springs very light in color and with top of head approaching the red of *gambeli* but with none of the distinctive breast markings. Desert surroundings might account for the variation from type. Or perhaps a cross between the two would not be a true hybrid and by mating with the California side of its parentage most of the *gambeli* markings would be lost. I should like expert opinions as to the possibility of a cross between *L. gambeli* and *L. vallicola* proving fertile instead of hybrid. The structural differences seem slight or *nil*, and coloration so much a matter of environment. The same question has been discussed in THE CONDOR concerning hybrid Flickers and no conclusion arrived at. But it seems to me that experiments with the partridges could be easily made and something definite learned. I have had Valley Partridges lay eggs in captivity; and with big enough enclosures, experiments with the two species should yield results.

Shiprock, New Mexico.

NESTING OF THE BI-COLORED BLACKBIRD

By H. F. DUPREY

EVERY collector living near a tule marsh is well acquainted with one of our most common birds, *Agelaius gubernator californicus*. Seven miles west of Santa Rosa, California, lies the Lagoon, grown with tules, weeds, water lilies, willows, etc., a tangled mass of swamp. For several years past I have paid this swamp a visit to gather tribute in the way of the eggs of the Bi-color. While Davie in his "Nests and Eggs" says that the nesting habits of Bi-color "are exactly the same as the eastern Redwing" (*Agelaius phœniceus*) the nests being placed in water-cress or rushes along running streams, ditches and swamps, in this lagoon I speak of I have in most cases found the nest fastened to three or four stalks of tule 18 to 24 inches above the surface of the water. Then again I have found the nests fastened to young willows growing along the banks of the lagoon. In Solano County I have found a great many nests attached to wild mustard growing in the grain fields several miles from any body of water. This wild mustard grows in patches in the fields, and in a space of 40 or 50 feet square grown up with mustard it is quite common to find seven or eight pairs nesting. It is also common to find nests in low swales in the fields that carry water in the winter and spring and

grow up with wire grass in April and May. Where nests are found here they are usually lower down, sometimes within ten or twelve inches of the ground.

I was fortunate on May 5, 1903, to find two nests of the Bi-colored Blackbird in oak trees, both southwest of Santa Rosa. The first one was in a large oak on the bank of a small creek in a grain field. Tho the usual wire grass and a few tules were growing along the edge of the water, this pair of birds built their nest on one of the lower limbs of the oak, seven feet above the ground out at the very end of the limb on a small crotch and fastened to the small growth and leaf stems. The nest was built of the usual material and lined the same. There were four eggs, the female was flushed from the nest, and the male bird was in another part of the tree.

About three miles more to the southwest and at the southern extremity of the same lagoon I mentioned before, I found another nest of Bi-color in an oak tree. This was a more interesting nest even than the other. It was situated in the very top of the tree; in fact the nest was fastened in the uppermost fork of the main part of the tree, 2½ feet from the very top point of the tree and 20 feet from the ground. It was a mass of tree moss and well concealed. The nest was of the usual material, eggs four in number and typical of Bi-color. The flushing of the female was what located the nest. The tree was at the very edge of the water, and was leaning over the water so that when I was in the top of the tree I could have dropped into the water three feet from the bank. After taking the eggs, I cut the top of the tree off about twelve inches below the nest. I still have this nest and set, and also have had it photographed. [Reproduced herewith.]

NEST OF BI-COLORED BLACKBIRD IN TOP OF OAK HUNG WITH LICHENS

Davie speaks of Mr. I. E. Hess of Philo, Ill., finding the nest of Redwing in a wild cherry tree and of unusual material; also a half mile from open water. The two nests I speak of were both built of the usual material, and both very close to where the Bi-colors most always nest. In fact the water and the nesting sites were there in both instances, but the birds selected the oak in preference. Why? I have come to the conclusion that it was to elude that enemy of most nesting birds, the California Jay, as in both instances the grass and tules at the water's edge were quite sparingly grown up and very open. I have also noticed that in the thick tules the nests were mostly placed in those growing at the edge of the little avenues of water running thru them. On same date as finding the two sets in the oak trees I also found one set of four eggs the nest of which was fastened to the tall grain stalks in a large grain field ¾ of a mile from the place where I found the first nest of Bi-color in the oak, which was the nearest water and 200 yards from the road. I located the nest by seeing the female settle down, and on going to investigate found the nest and eggs.

Davie's "Nests and Eggs" and Bendire's "Life Histories" both make only one description of the eggs of the Bi-color; namely, light blue or bluish white, marked around the larger end with waving lines of dark brown, lighter in shade than the markings on the eggs of the common Red-wing (Davie). "The eggs are two to four in number (very rarely more), and resemble those of the Red-wing Blackbird excepting that they are a trifle smaller and perhaps on an average less heavily marked, but otherwise the same description will answer for both" (Bendire); also only two types given on Plate VI.

I have in my collection a set which is typical of the Bi-colored Blackbird. Also a set of four eggs, which are not marked at all, only plain ground color showing, and another with plain ground color, at larger end quite a bit darker, and with only one or two very faint and small dark lines showing. On the whole I think that this blackbird is a very interesting subject ot study, and tho it is somewhat common much can be learned by studying the common birds, as well as those that are less familiar.

Santa Rosa, California.

NOTES ON THE PALLID WREN-TIT

By WRIGHT M. PIERCE

THE Pallid Wren-Tit (*Chamæa fasciata henshawi*), a little bird with a brown-colored back and wings, and a buffy colored breast, lightly streaked with gray, so common on the brush-covered slopes below the foot-hills and even well up into the mountainous districts about here, has always seemed a very interesting little subject of bird life to me. With his long tail, common to members of the tit family, and his wren-shaped body, he is unique, showing some characteristics of both wren and tit families. The lower foot-hills and the mesa regions are the favorite haunts of this bird, altho we meet with him at higher altitudes but with somewhat less frequency the farther up we go. But even tho the lower haunts of this bird are very accessible, this little fellow seldom appears to the casual observer of bird life, for usually the moment you approach he hops off into the surrounding sombre-colored sage which is in exact harmony with his plumage. Then very likely in a moment, from some bush or tree not far away, you hear again his call; but on drawing near to the latest retreat of this unobtrusive little bird, the song suddenly ceases and by the time you have arrived the source has likely disappeared again. However I do not wish to have it understood by these remarks that this bird is especially wild or wary; quite the opposite, for he seems to slip away in no hurry and in such a matter of fact way, simply going slowly from branch to branch of some bush, diligently seeking small insects, seeds and grubs that are his food. Then by a short quick flight he is away to the next bush. He, without doubt, relies upon the protective color of his plumage for his escape from his enemies, and incidentally from those who wish to observe his actions.

Chamæa fasciata henshawi, as the scientist calls him, must nest commonly about here, for the birds are met with as frequently during the nesting season as at other times of the year; in fact, they are more in evidence during the mating season than at other times because of their distinctive whistle-like song, which is uttered then with more frequency. This song or whistle, tho perhaps not very musical, seems very fitting and appropriate with the surroundings, from which it is uttered: the lonely chaparral-covered canyons and gulches of our foot-hills and lower ranges, or the broad expanse of brown-colored brush, or, perhaps, farther up in the higher

and thicker brush and buckthorn on the steeper ridges of the rugged mountains. These birds are not like the Western Mockingbird and some of our other birds which are silent for several months during the year, for their call can be heard at intervals by the bird student on a calm cloudy day in winter as well as on a bright warm sunlit morning in spring, but not with such frequency.

But to return to the nesting habits, of which I feel that I really know very little as I have never found many of their nests. The few that I have discovered were back in the mountains north of here. The notes that I have of one found last year are interesting. On May 15, while on a fishing trip near Dell's Camp (altitude about 4500 feet) in San Antonio Canyon (and I might say that I caught thirty-five beauties that day), I came across a nest of this little bird. It was situated among thick branches and near the top of a scrub oak bush perhaps two and a half feet up, and is a gem of bird workmanship, composed, as it is, of bleached weed fibres such as fine grasses, an abundance of soft plant down, a little weed bark, and fine hairy threads of bark of the yucca plant, with a few wider blades of grass intermixed and woven about thru the whole thick-walled structure. A thick mat of horse hair makes the lining. To more firmly bind and hold together the nest, which even without would have been unusually strong and serviceable, these ingenious little birds used cobwebs as an outer covering to make their house doubly strong. The dimensions of the nest are: Depth, outside, five inches; inside, two inches. Diameter, outside, four inches; inside, two inches.

As the bird flushed from her three fresh eggs she fell to the ground where she remained for a few moments fluttering about and uttering a hissing sound intermingled with sharp croaks. Then seeing that I could not be enticed from her home she flew up into a small bush and gave forth her whistle call, and very soon Mr. Wren-tit joined his mate in her song. Since on the next morning when I approached the nest again the bird went thru these same actions I feel that I am safe in saying that they are very characteristic of the nesting Wren-Tit.

On every spring day that I have been in the haunts of this bird, I have been looking for a chance to observe more of its home life; but, so far, I have not been very successful in locating the nests, probably because of the skill with which the birds conceal them among the thick bushes. But as I wander about, even tho I do not find any of the Pallid Wren-Tit's nests, I am able to observe and study one or another of the numerous nature subjects which are found so abundantly in our Southern California fields—the sweet voiced birds, with their peculiar habits and different songs, the many colored and shaped insects, and the brilliant and sweet-scented flowers; so that for any time that I spend in such pursuits I always feel well repaid.

Claremont, California.

SOME BIRDS OF SOUTHWEST COLORADO

By M. FRENCH GILMAN

HAVING spent a little more than a year in southwest Colorado—to be exact, from December 23, 1905, to January 31, 1907—I contribute to THE CONDOR what few bird observations I was able to make. My base of operations was Fort Lewis, an Indian school located in La Plata County at an altitude of about 7,500 feet. Unless otherwise stated, all records refer to this place.

Mr. E. R. Warren of Colorado Springs kindly furnished me with some data

from the counties of Montezuma, Montrose and San Miguel, which is specified as it occurs in the text. My location was unfavorable for water birds so no account is taken of them.

Fort Lewis school is situated on a terrace a few feet above the La Plata River. On each side of the river is a more or less level mesa covered with a growth of pine (*Pinus flexilis*), pinyon (*Pinus edulis*), juniper (*Juniperus occidentalis*) and scrub oak (*Quercus undulata* and *Quercus u. gambeli*). The river bottom sustains a heavy growth of narrow-leaf cottonwood (*Populus angustifolia*), black birch (*Betula occidentalis*), paper-leaf alder (*Alnus tenuifolia*), two kinds of willow, some aspens (*Populus tremuloides*), a few pines (*P. flexilis*), and an occasional blue spruce (*Picea pungens*). Two trips were made to the top of the La Plata Mountains, something over 13,000 feet elevation, and vegetation already noted was found to gradually give way to more of the blue spruce and aspen.

I am indebted to ex-Supt. W. M. Peterson and Supt. J. S. Spear, of the Fort Lewis School, for opportunity for study and observation. The list is by no means complete but may prove of interest to some CONDOR readers.

Dendragapus obscurus. Dusky Grouse. Said to be commom on the north slopes of the La Plata Mountains. I picked up a dead one December 20, on the snow near La Plata City, altitude 10,000 feet. It had been partly eaten, by an owl, perhaps.

Pediœcetes phasianellus columbianus or **campestris.** Sharp-tailed Grouse. A few scattered on the mesas at about 7,500 feet. Resident thruout the year. In winter their tracks are frequently seen on top of snow 3 or 4 feet deep. I have seen where they roosted in the snow—a short tunnel with two openings; apparently only one bird in each, however. Two birds secured had crops full of acorns. The greatest number seen was a flock of 18, the usual number being 6 to 10. On May 11, 1906, Mr. W. M. Peterson found a nest containing 11 eggs, situated on the ground under a small scrub oak. He drove over the bush in a buggy but the nest escaped harm. Not so the brood, however, which hatched two weeks later; for an Indian killed the mother before the young were old enough to shift for themselves. The nest-cavity was lined with grass and feathers. I identified two birds secured as variety *campestris*, but afterward noting what Cooke's "Birds of Colorado" had to say on the subject I became uncertain. They are now in California and must await authoritative identification.

Zenaidura carolinensis. Mourning Dove. Not numerous at this altitude. A few noted in summer. Several seen in January near Navajo Springs on the Southern Ute reservation near the New Mexico line, altitude about 5,500 feet. Probably a few winter there. Mr. Warren reports them near Cortez April 8, and common at Coventry, Montrose County, about April 20.

Meleagris gollopavo merriami. Merriam Turkey. Mr. Warren tells me that C. H. Smith of Coventry saw a turkey, probably this variety, in January, 1899, in San Miguel Canyon and heard of them a year or two later in the same locality. While down in the Navajo reservation in New Mexico I helped eat two wild turkeys killed by Indians in the Carriso Mountains, somewhere near the Four Corners. They sold them to a post trader but had all the feathers picked off before bringing them in. I was not expert enough to identify the subspecies after they had been brought on the table but judged they were hatched at least five years before before being bitten into.

Circus hudsonius. Marsh Hawk. Seen once near the New Mexico line. Mr. Warren reports it at Cortez in April.

Cathartes aura. Turkey Vulture. An occasional buzzard was seen floating along in spring and summer, but I saw no signs of nesting.

Accipiter velox. Sharp-shinned Hawk. Only two seen.

Accipiter cooperi. Cooper Hawk. Probably six seen during the season.

Buteo borealis calurus. Western Red-tailed Hawk. A few breeding in the locality.

Buteo swainsoni. Swainson Hawk. One seen occasionally.

Aquila chrysaetos. Golden Eagle. Only one seen.

Falco mexicanus. Prairie Falcon. One seen in the fall.

Falco sparverius. Sparrow Hawk. Common, nesting in deserted flicker and Lewis woodpecker holes. Saw sets of from 3 to 5 eggs during the latter part of May. One bird noticed in January. Mr. Warren says it is common in Montezuma County, and at Coventry.

Strix pratincola. Barn Owl. One seen near Mancos, and one often seen at a barn half a mile below Fort Lewis.

Asio wilsonianus. Long-eared Owl. More numerous than the other owls. Breeds in deserted magpie nests. Found set of 4 eggs April 25.

Syrnium occidentale. Spotted Owl. Two seen in the spring.

Megascops flammeola. Flammulated Screech Owl. I saw one of these little owls in a black birch one morning, but did not secure it.

Bubo magellanicus pallescens. Western Horned Owl. Heard frequently, but seen rarely. Resident.

Speotyto cunicularia hypogæa. Ground Owl. I saw one below Cortez, and Mr. Warren reports one from Cortez.

Glaucidium gnoma. Pigmy Owl. I found a dead young one in a deserted flicker's nest.

Ceryle alcyon. Belted Kingfisher. Two seen during the season.

Dryobates villosus monticola. Rocky Mountain Hairy Woodpecker. Fairly common resident, tho not seen unless quietly looked for.

Dryobates pubescens homorus. Batchelder Woodpecker. Seen occasionally along the river bottom.

Sphyrapicus varius nuchalis. Red-naped Sapsucker. Their "drawn-work," on birch and alder trees, was noticed frequently. One pair raised a nest of young just outside the school grounds in a tall cottonwood tree.

Melanerpes torquatus. Lewis Woodpecker. Saw four pairs during the spring. I found a nest completed in a dead pine tree, but when I returned, a few days later, woodcutters had felled the tree. Another pair nested in a pine tree a short distance from Mr. Peterson's "rubber camp" and raised a brood of four.

Colaptes cafer collaris. Red-shafted Flicker. Numerous along the river bottom, and some on the pine mesas. Mr. Warren reports them from Montezuma County and Coventry in Montrose County.

Phalænoptilus nuttalli. Poor-will. An occasional Poor-will was seen at dusk along the roads. None heard.

Chordeiles virginianus henryi. Western Nighthawk. Seen in flocks of 10 to 30 several evenings, probably migrating.

Aeronautes melanoleucus. White-throated Swift. Seen once in the La Plata Mountains.

Selasphorus platycercus. Broad-tailed Hummer. Four or five seen during the year. One caught.

Tyrannus tyrannus. Kingbird. One seen on a wire fence at Navajo Springs in June.

Tyrannus verticalis. Arkansas Kingbird. Five seen one day and none afterward. Probably stragglers to that altitude.

Tyrannus vociferans. Cassin Kingbird. A pair nested on the Fort Lewis mesa.

Myiarchus cinerascens. Ash-throated Flycatcher. One seen in spring.

Sayornis saya. Say Phœbe. Common, nesting on porches. Mr. Warren saw them at Coventry, and in Montezuma County.

Contopus borealis. Olive-sided Flycatcher. A few seen.

Contopus richardsoni. Western Wood Pewee. Two seen during the spring.

Empidonax hammondi. Hammond Flycatcher. A few noticed and one nest found.

Otocoris alpestris { **leucolæma** / **arenicola** / **arcticola** } Horned Lark. Just what part of our alphabet to annex here I do not know. I saw horned larks in the spring between Cortez and Navajo Springs. In winter I saw flocks of them at 9500 feet in the La Plata mountains. I secured a few specimens but they were accidentally destroyed. The summer birds I placed as *leucolæma* and the winter birds as *arcticola*.

Pica pica hudsonica. Black-billed Magpie. Found along all streams in southwestern Colorado.

Cyanocitta stelleri diademata. Long-crested Jay. Numerous at and near Fort Lewis during winter of 1906. In 1907 up to January 31, only three were seen. Three pairs nested on the Fort Lewis mesa, but most of them went to higher altitudes. Early in May I found a nest near the end of a limb of a pine tree. It was about 10 feet from the tree trunk and 15 feet from the ground. May 13, the bird, a close sitter, was flushed from the nest and four eggs uncovered, one slightly cracked. Nest similar in construction to that of the Blue-fronted Jay. June 24, I saw young birds, just from the nest, at 10,000 feet altitude in the La Plata Mountains.

Aphelocoma woodhousei. Woodhouse Jay. Very numerous during months of January, February and March, 1906. All except one bird disappeared during April. I saw none during the nesting season. Up to January 31, 1907, none were seen except two down the La Plata River near the New Mexico line.

Perisoreus canadensis capitalis. Rocky Mountain Jay. Seen only at timber line on the La Plata Mountains, and not common there. Saw a pair, with four young, flying about searching logs and fallen trees for food. Young were very tame but adults shyer. This was on July 22.

Corvus corax sinuatus. American Raven. A few spent the winter at Fort Lewis sharing with magpies and crows stolen scraps from the pig-pen. Two or three pairs seen during the breeding season but no nests found. Mr. Warren states that they are common at Cortez and Coventry.

Corvus americanus. American Crow. Common all winter and a few seen in spring and summer tho no nests found. Some of the birds were quite tame in severe weather. Mr. Warren reports them common at Coventry at times in the fall.

Nucifraga columbiana. Clark Nutcracker. Occasionally noticed in the winter. March 11, 1906, I saw a pair in Pine Gulch about two miles west of Fort Lewis and at about the same altitude. One of them was busily engaged in assaulting a pair of Red-tailed Hawks that sat in the top of a dead pine tree. More than a foot of snow covered the ground at this time. May 1, I saw in the same locality a pair of nutcrackers accompanied by three young ones. They followed the old birds begging for food in tones that could be heard half a mile or more. I saw them again a week later, discovering them both times by the vociferous begging of

the young birds. In June I saw several of the birds above timber line in the La Plata Mountains.

Cyanocephalus cyanocephalus. Pinyon Jay. Several small flocks seen during early spring. Seemed always on the go. Mr. Peterson told me he saw young birds in the Carriso Mountains, near Four Corners, during the month of June. Mr. Warren says the birds are common residents at Coventry.

Molothrus ater. Cowbird. A few noticed with Brewer Blackbirds in the spring. I found an egg in a nest with two eggs of the Tolmie Warbler. In summer an immature bird was sometimes seen with the blackbirds.

Xanthocephalus xanthocephalus. Yellow-headed Blackbird. Two seen at Fort Lewis and a small colony were apparently nesting in a pond of tules near Cortez.

Agelaius phœniceus. Red-winged Blackbird. Not uncommon, nesting in small willows.

Sturnella neglecta. Western Meadowlark. Several noticed during nesting season and a few found in January near Cortez.

Icterus bullocki. Bullock Oriole. Two pairs nested at Fort Lewis in the season of 1906.

Scolecophagus cyanocephalus. Brewer Blackbird. Numerous during the breeding season and for a few weeks afterward. First one arrived April 11. They nested in willows, pines and scrub oaks, and, most surprising to me, on the ground. Three nests were discovered so situated: one in a deep horse track at base of a clump of grass; another at base of a small wild rose bush, and the third under a bushy wild cherry. After nesting was over the birds, old and young, congregated in flocks and made war on the multitude of grasshoppers infesting the alfalfa fields.

Carpodacus cassini. Cassin Purple Finch. Two seen April 22 and three a week later.

Carpodacus mexicanus frontalis. House Finch. Two seen on the La Plata River about ten miles below Fort Lewis in October, and a pair seen near Cortez in May. Mr. Warren saw them at Ashbaugh's ranch in the McElmo Canyon country.

Loxia curvirostra stricklandi. Mexican Crossbill. A female seen May 13, on Fort Lewis mesa, and a pair seen just below timber line on the La Plata Mountains, July 22.

Leucosticte australis. Brown-capped Leucosticte. Two seen January, 1906. A pair seen on summit of the La Platas June 24, and July 22 a pair seen and young heard faintly calling, near the same spot. In January, 1907, about a dozen remained around Fort Lewis several days.

Astragalinus tristis pallidus. Pale Goldfinch. Several seen from April 29 on during the season. Apparently nesting tho none found.

Astragalinus psaltria. Arkansas Goldfinch. Seen two or three times; not common and apparently not breeding.

Spinus pinus. Pine Finch. Seen first on March 30, becoming numerous soon after. About June 1, they nearly all left. On June 24 I found them quite common at 10,000 feet in the mountains.

Passer domesticus. English Sparrow. A flock of 25 or 30 stayed all winter about the barn and corral at Fort Lewis in 1906, four or five pairs remaining to breed. In the winter of 1907 the number was about doubled. Mr. Warren reports them at Cortez, and at Durango they fairly swarm.

Calcarius ornatus. Chestnut-collared Longspur. Mr. Warren secured one at Cortez, April 5, 1906.

Poœcetes gramineus confinis. Western Vesper Sparrow. First seen April 3,

soon becoming common. Nest and five eggs found May 6. Mr. Warren says they appeared about April 15 in Montezuma County.

Chondestes grammacus strigatus. Western Lark Sparrow. A few seen during the nesting season. Not common.

Zonotrichia leucophrys. White-crowned Sparrow. A number seen during early spring, and a pair seen all thru nesting season tho no nest located. Two pairs seen in a mountain meadow just below timber line.

Zonotrichia leucophrys gambeli. Gambel Sparrow. Seen during migration. Mr. Warren reports it from the McElmo district, April 13.

Spizella monticola ochracea. Western Tree Sparrow. Several seen during the winters of 1906 and 1907.

Spizella socialis arizonæ. Western Chipping Sparrow. Abundant. Found nesting at Fort Lewis, Cortez and Navajo Springs.

Junco hyemalis. Slate-colored Junco. One seen several times during March, 1906, and another seen in January, 1907.

Junco hyemalis connectens. Intermediate Junco. Numerous all winter.

Junco mearnsi. Pink-sided Junco. Abundant during the winter months, leaving about the second week in April. A partial albino secured.

Junco caniceps. Gray-headed Junco. Numerous at Fort Lewis during winter and early spring. Seen at timber line in July.

Amphispiza bilineata deserticola. Desert Sparrow. Seen in the La Plata River valley near the New Mexico line and at Navajo Springs. Mr. Warren saw the bird in the McElmo district in April.

Amphispiza belli nevadensis. Sage Sparrow. Seen near Navajo Springs. Mr. Warren reports it as taken at Coventry.

Melospiza melodia montana. Mountain Song Sparrow. Three seen in the spring of 1906 at Fort Lewis.

Melospiza lincolni. Lincoln Sparrow. One secured at Fort Lewis.

Passerella iliaca schistacea. Slate-colored Sparrow. Three seen in the spring of 1906.

Pipilo maculatus arcticus. Arctic Towhee. Several noted in January and February, 1906.

Pipilo maculatus megalonyx. Spurred Towhee. Nesting abundantly all over the mesas, and among scrub oak, wild roses and wild cherries.

Pipilo aberti. Abert Towhee. Between Cortez and Navajo Springs I saw what I believed to be this bird but had no gun with which to secure it.

Oreospiza chlorura. Green-tailed Towhee. Arrived April 28 at Ft. Lewis. Nested on the mesas in bushes usually near a small stream.

Zamelodia melanocephala. Black-headed Grosbeak. Arrived May 15. A few nested in the locality.

Cyanospiza amœna. Lazuli Bunting. Rather common, nesting in the small wild cherry shrubs and in the wild roses.

Calamospiza melancorys. Lark Bunting. Seen from near Cortez to Navajo Springs in May. A nest found at Navajo Springs, June 1, contained four fresh eggs and a broken one just outside the nest. This was beneath a clump of grass and quite similar in appearance and location to that of a Lark Sparrow. The birds were quite numerous and not at all wild. The flight song is very pleasing, the bird flying upward at an angle approaching 50° and then fluttering slowly to the ground uttering his song nearly the whole time he is in the air. Six or eight of the oddly colored males in the air at once going thru their maneuvers is something worth seeing, and possesses a fascination for one.

Hirundo erythrogastra. Barn Swallow. Seen at Ft. Lewis and found nesting at Cortez.

Piranga ludoviciana. Western Tanager. Not common; breeding.

Stelgidopteryx serripennis. Rough-winged Swallow. Seen a few times.

(*To be concluded in November*)

THE RUFOUS-CROWNED SPARROW IN SAN DIEGO COUNTY, CALIFORNIA

By NELSON K. CARPENTER

IT was another one of those dark foggy mornings that were so plentiful last spring in southern California. I was standing on the east slope of a steep gulch watching a pair of Costa Hummers feeding their two fully grown young. I stepped to one side to get a better view but in doing so startled something in the grass about five feet away. Catching a glimpse of a small brown object as it shot into the thick brush ahead I completely forgot my hummingbirds.

Whether it was bird or mammal I could not tell. My first guess named it a wood-rat but a moment's reflection changed my mind. It must be a bird. Perhaps a Spurred Towhee. I parted the weeds and almost the first thing I saw was a nest containing three fresh "white" eggs. Not a Spurred Towhee but probably a Rufous-crowned Sparrow. I waited for a few minutes but did not get another glimpse of the bird.

My next visit to the gulch was made on June 2, just four days after I had first found the nest. I wound my way thru the thick brush as quietly as possible, but when I came to the nest the sparrow was gone, and all looked just as I had lef them. My hopes vanished. Yes, a valuable find but probably an incomplete sett and uncertain identity. I took several exposures with a kodak and went to the other side of the ravine to await the uncertain. It was fully half an hour before I saw anything encouraging. The sun was getting hot and I was pretty well disgusted, when of a sudden two sparrows came flying over the hill and lit in a sumac bush about forty feet from the nest. They did not make a sound but quietly plumed their feathers. Finally one of them slipped to the ground and disappeared. About two minutes later it reappeared in the top of a bush about ten feet nearer the nest, but quickly slid down the stem into the grass and was again lost to view. This was repeated at least half a dozen times, the bird having completed almost a semi-circle around the nest, but at the same time drawing nearer. Finally its last survey of the country was taken from a small bush about three feet from the nest. This time she did not climb to the top but only about half way up. She stayed but a moment and was again lost from view. A few seconds and I saw her standing on the edge of the nest looking at its treasures. She slipped on and completely hid from sight. All this time her mate did sentinel duty from the top of the sumac, which was just out of reach of my light charges of dust shot.

I thought it was my next move, but while figuring the surest way by which I might collect her, Mrs. Sparrow appeared on the edge of her nest and quietly slipped away to her nearest outlook. I shot quickly but she was quicker, for all I could find upon crossing the gulch was broken twigs. Her mate was gone also and I was just where I had been an hour before, only with the birds badly scared and perhaps one injured.

All I could do was to recross the gulch and wait. Another half-hour of blazing heat and my sparrows came over the hill and alighted in the same bush as they had done on their former visit. I waited to make sure that these were my birds and while doing so saw their first performance entirely repeated. This time, however, I had better success for I secured the female just after she left the nest, proving the species to be the Rufous-crowned Sparrow (*Aimophila ruficeps*). Dissection showed the set to be complete.

The eggs, upon blowing, proved to be slightly incubated and also had a very distinct bluish color, spoken of by the late Chester Barlow (CONDOR, Vol. IV, page 109). In fact they were nearly as blue as Arkansas Goldfinch eggs but have since faded considerably even tho kept in the dark. They measure as follows: .74x.61, .74x62, .71x62 inches.

The nest was placed at the foot of a bank which was about a foot high. A small bush which had grown on top of the ledge had died and fallen over making

NEST AND EGGS OF RUFOUS-CROWNED SPARROW

a miniature brush pile. Into this the birds had broken their way using the fine twigs of the bush as a foundation for the nest. This mat of twigs was nearly two inches wide on the front side of the nest and entirely lacking where the nest touched the bank. The nest itself was made of very fine dry yellow grass with considerable black horse hair in the lining. The inside dimensions of the nest are one and a half inches deep by two and three-quarter inches across. The mat of twigs around the exposed edges was so interwoven with the surrounding bush that it was hard to tell exactly where the nest began.

Last year a friend collected a set of four eggs of this species near San Diego, on May 13, in which incubation was complete in three, the fourth being addled. The nest was on the ground and made entirely of grass. The eggs were slightly larger than the set just described and a very much paler blue.

Escondido, California.

THE CONDOR FIFTY YEARS AGO

By C. S. SHARP

IT was recently my good fortune to secure a work that is probably little known to most of the present day ornithologists. This is the "North American Oology," by Dr. Thos. M. Brewer, one volume only, published by the Smithsonian Institution in 1857. It is somewhat of the nature of Bendire's "Life Histories," the size and general make-up being the same, but necessarily much abbreviated. It comprises 112 pages of text with preface and addenda, table of contents, "Catalogue of the Species of Birds inhabiting North America north of Mexico" (as contained in the volume), index, and five pages of lithographic plates, illustrating the eggs of fifty-one species, seventy-four eggs in all being shown.

These plates are very fine, being only slightly inferior to the splendid illustrations in the "Life Histories."

In the preface Dr. Brewer says: "The present part embraces the descriptions and illustrations of the eggs of the Order Raptores and of the Tribe Fissirostres of the Order Insessores. So far as he (the author) is at present aware, these include seventy-nine species inhabiting North America. Of these the eggs of no less than twenty are still entirely unknown to him, while of those of eleven others he has no present means of giving illustrations." In this connection it will be of interest to note that our present list contains fifty-eight recognized species of Raptores and some thirty-nine subspecies. Dr. Brewer in his catalogue gives fifty-nine, several of which have been since discarded or given sub-specific rank. Of the Insessores, families Caprimulgidæ, Hirundinidæ and Halcyonidæ he gives twenty species. Our list contains the same number of species and thirteen subspecies for these three families.

As may be readily understood the facilities for obtaining accurate data fifty years ago were extremely limited, and access to large series of eggs and nests was not possible as at the present time. Eggs of many species that we now consider fairly common were then unknown. In many instances Dr. Brewer's descriptions are from single eggs only, or from hearsay, or from drawings of eggs. One can readily understand the tremendous discouragements of scientific work under such circumstances, and it is not surprising that only the one volume was produced. As an instance of contradictory data and lack of it his article on the Condor is of interest, and is particularly so in view of Mr. Finley's most interesting papers. It is given without abridgment.

Cathartes Californianus.

(Eleven lines of synomymy)

Vulg.—The Californian Vulture.
The California Turkey-Buzzard.

But one instance of the possession of a well-authenticated egg of this species by a naturalist has come to my knowledge. This was one laid in confinement by a female belonging to the Garden of Plants in Paris. An accurate drawing of this was taken by Dr. James Trudeau, and is now in my possession. There seems no reason to doubt that the egg thus laid does not essentially vary from those deposited in a wild state. It certainly is hardly possible that the variations between this and the natural egg can be so total and striking, as between it and the attributed shape and markings of the eggs of this species, if we credit the previous accounts which have been given of the eggs of the Californian Vulture. These descriptions are, however, all traceable to one source, so far as I am aware. David Douglas, in the Zoological Journal, speaks of the eggs of

this Vulture as nearly spherical, JET-BLACK, and about the size of those of a goose.[1] Following this authority, all writers who have referred to the eggs of the California Vulture have described them in a similar manner. That they should be spherical would be an exceptional case to the whole genus, and is therefore hardly probable, though by no means impossible. Markings of a jet-black color, even to the extent of blotches, spots, or lines, are of very rare occurrence, if not positively unknown. Nor am I aware that any of this family of Vultures ever construct nests. For these reasons, and until the statements of Mr. Douglas can be confirmed by other testimony, I am inclined to discredit his accounts of its nest, eggs, and habits in every respect. In this unbelief I am in part confirmed by the testimony of Mr. Townsend. He was informed, as he tells us, by the Indians of the Columbia River, that the Californian Vulture, like all others of its genus, breeds on the ground, fixing the place for a nest in swamps, under the pine forests, chiefly in the alpine country,—in this conforming with the habits of the family.

The egg in the Garden of Plants corresponds, in its generic characteristics, with the eggs of the *Cathartes aura*, the *C. atratus*, and also with those of the *jota* and *brasiliensis* of South America. It is also remarkably similar, except in size, to occasional marked varieties of the egg of the Condor (*Sarcoramphus gryphus*) which, however, is usually white and unspotted. I feel justified, therefore, in accepting the drawing as an authentic representative of those of this species.

This egg measured $3\frac{1}{16}$ inches in length by $2\frac{3}{16}$ in its greatest breadth. Its ground color is that of all the known eggs of this genus, a rich cream-color, or a yellowish-white. A ring of reddish-brown confluent blotches surround the larger end, leaving the residue nearly free from markings. A few blotches of a smaller size and lighter color are distributed over the whole surface. The faint purplish-drab markings noticeable in the eggs of the preceding species (*C. atratus*) are not observable in this specimen.

The Californian Vulture is confined to the western slope of the Rocky Mountains. It is there found from the extreme southern portions of the Pacific coast of North America to Washington Territory and the British possessions, where it abounds in the summer season. It was met with by Mr. Townsend on the banks of the Columbia, upwards of five hundred miles above the mouth of that river, throughout the months of June, July, and August.

ADDENDA

Cathartes Californianus.—In Newman's "Zoologist" (Vol. XIII, p. 4633, 1855) occurs the following in reference to the nesting and eggs of the California Vulture. It is contributed by Mr. A. S. Taylor, of Monterey. I have given it with the view of putting on record all the statements and descriptions made public in this connection, though I do not think the account here given will be confirmed in all respects by more full and certain testimony. Mr. Taylor's information is, as may be seen, derived from the reports of others, and is therefore not so reliable as it would be if given from his own observations.

"The egg of the bird is three inches broad and five long, about one-third longer than a goose's egg. Its color is a dirty pale blue, spotted brown, and it is nearly as thick as an ostrich's egg. The same person informs me, that the female lays only one egg during the season, and makes her nest on the ground in the ravines of the mountains, and generally near the roots of the redwood and pine trees. It is three months before the young birds can fly."

Escondido, California.

FROM FIELD AND STUDY

Pointers for the Field Naturalist.—*Bamboo.*—To those who, like myself, make up skins with "sticks in 'em" I can recommend bamboo as the best possible wood for bird necks. It is also useful for extending broken legs in large birds. One end of a small piece is easily whittled down to fit tightly into the stump of the broken member; for mammal tails—*ne plus*

[1] "They build in the most secret and impenetrable parts of the pine forests, invariably selecting the loftiest trees that overhang the precipices on the deepest and least accessible parts of the mountain valleys. The nest is large, composed of strong thorny twigs and grass, in every way similar to the nests of the eagle tribe, but more slovenly constructed. The same pair resort for several years to the same nest, bestowing little trouble or attention in repairing it.

They lay two nearly jet-black eggs, about the size of those of a goose. They hatch generally about the 1st of June, and the period of incubation is twenty-nine or thirty days."—(*David Douglas, Zoological Journal.*)

ultra. Bamboo is so light, strong, and straight-grained that it is difficult to imagine anything better for the above purposes.

Napthalin.—If you are going to the tropics to collect anything except rocks, take a big supply of flake napthalin. In the Philippines, as in other tropical countries, there are many species of ants. A good part of these make it their business to eat every kind of animal substance they can find, and they do not neglect birds, from freshly killed specimens to dry skins. In a closed box napthalin is sudden death to all species of ants and it prevents ants and other insects from entering. It also helps to prevent the growth of mould. Napthalin is a necessary adjunct to the botanist. A pinch scattered over each specimen when the first change of dryers is made kills the many "grubs" or insect larvæ which if undisturbed often ruin the flowers before the specimens are dry. There are also certain ants, mostly small black species so far as I have observed, which spend their time on shrubs and trees and decline to leave even when specimens are put in press. These also are driven off by napthalin.

Gun Varnish.—During sea or shore shooting, or for rainy weather, a mixture of equal parts linseed oil and turpentine, applied daily to arms, will harden and form a coat which is impervious to moisture and is as superior to vaseline or "gun oil" as your own hair is to a wig. It seems needless to add that this mixture should not be put into the works of a gun. If the arm is to be put away for a month or more a coat of the mixture on the inside of the barrels is an excellent protection.

Fish-basket.—I suppose every bird collector has used a fish creel in the field and has wished that they were made without the hole in the cover. To get rid of the hole and to protect specimens from heat and rain get a piece of light colored oil-cloth a little larger than top of creel and sew it on letting it hang over the edge.

Abdominal Opening.—In dealing with doves, ducks, grebes and any birds with short or scale-like feathers a much better looking skin can be made if a transverse cut is made instead of the ordinary breast-to-vent opening. The cut should extend backward from the base of each leg and connect thru the vent The skinning proceeds much as usual. In the make-up there will be no unsightly break in the central abdominal feathers and the cut, being closed by a few stitches, will present very little evidence of its whereabouts. This method may be known to American collectors but I first saw it used by my Filipino assistant, Andres Celestino.

Wad-marker.—Anyone having many shells to load will find a wad-marker made as follows an efficient and useful article. Take a square rubber eraser and cut the ends off smooth and square; on each end mark with a lead-pencil a number corresponding with the sized shot you most frequently use. Now cut away the rubber from around the pencil mark and the result is a rubber stamp.

Formalin.—If the feet of large birds be opened in the sole and a liberal amount of full strength formalin injected, the drying will be greatly hastened and all danger of sloughing scales will be avoided. There is considerable danger of the latter trouble in a damp and hot climate. In the case of long-legged birds such as herons, it is well to dose the leg at the tarso-metatarsal joint also. The liquid may be introduced by means of a large hypodermic syringe; but if that instrument is wanting bits of cotton soaked in the preservative and pushed inside the foot give good results.—RICHARD C. MCGREGOR, *Manila, P. I.*

Destruction of Herons by a Hail-storm.—The following brief item is from the Lyons, Colorado, *Recorder* of July 18, 1907:

"The cranes' resort, three miles east of Lyons, was broken up by the recent hail-storm. The ground under the trees is covered with dead birds."

The item refers to the Great Blue Heron, the mistake in nomenclature having been since corrected by the paper at my suggestion. The St. Vrain colony, near Lyons, where the disaster occurred, is a well-known and interesting heronry. These birds, in the northern Colorado colonies, on account of their habit of nesting in the tops of the trees above protecting branches, and the severity of occasional hail-storms, are very liable to destruction. In perusing the note-books of Denis Gale I noticed that, in 1890, he found many nests in this same colony destroyed by heavy winds, and that he found buzzards nesting in the same trees with the herons.—JUNIUS HENDERSON, *Boulder, Colorado.*

Siphia erithacus Sharpe; a Correction.—I regret that thru oversight I have burdened this little flycatcher with another name and therefore wish to make this correction. *Cyornis erithaca* of Sharpe's Hand-list should stand as *Cyornis platenæ* (Blasius), Ornis, 1888, p. 308, with *Siphia erithacus* Sharpe and *Cyornis paraguæ* McGregor, Condor, VIII, p. 29, as synonyms. —RICHARD C. MCGREGOR, *Manila, P. I.*

THE CONDOR

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EDITORIALS

In our last issue we reviewed *The Warbler*, a magazine of birds published at Floral Park, New York. We now take the opportunity to tell our readers something of the editor of that magazine. It is relatively seldom that a man of affairs, who has been successful in his business undertakings and acquired wealth, enters the field of natural history as a source of recreation and enjoyment. Perhaps the nature of Mr. Childs' business (seed and flower culture) developed the tendency towards scientific interests. Or, what was far more probable, an inherent love of nature led naturally into that line of business. His success as a florist is almost too well known to require mention here; yet a brief history of the inception and growth of the enterprise will doubtless interest our readers. We take the liberty of quoting the following from an article in the *Long Island Magazine*:

"A little over thirty-three years ago there arrived at what is now universally known as Floral Park, Long Island, but what was then little more than a wilderness, a boy of eighteen years of age, having none of this world's possessions, but endowed above his fellows with ambition, determination and initiative. That lad was John Lewis Childs.

"Born on a farm near Jay, Maine, young Childs early realized that the possibilities held out by farm life in the New England States were comparatively small. His love of flowers and Nature in general caused him to determine upon the career of a florist. Without capital it was impossible to enter any market which a settled community might afford, hence if his ambitions were to be fulfilled he must locate in some district which had not yet passed the pioneer stage. From time to time he had heard of Long Island, of its even and salubrious climate, of its fertile soil, and its ideal situation; and he instinctively felt that here, if anywhere, he would be afforded a field peculiarly well adapted to his enterprise.

"When Mr. Childs settled at Floral Park he had not the advantages of railway communication nor any of the other conveniences of modern times. Undaunted by circumstances, however, and in the face of every obstacle, he entered upon what was destined to be his life-work, constructing the first house in the district and performing manual labor for some time entirely unassisted.

JOHN LEWIS CHILDS

"How small a beginning this was will be appreciated when it is learned that the proceeds of his first year of effort amounted to less than a hundred dollars. That was a small beginning, but it did not discourage Mr. Childs, who realized that if success were to be obtained at

all its price must be years of hard work and frequent disappointment. The condition of the flower market, and the difficulty thru lack of adequate communication facilities, of successfully competing with florists better situated than himself, told Mr. Childs that if he were to succeed, he must pursue an entirely original policy. Advertising at that time was in its youth and very few men had even a fair conception of its value. Mr. Childs was among the few. Commencing to advertise in a small way in a number of periodicals whose circulation would be likely to reach the people he desired to serve, he gradually increased his patronage as his trade increased, later commencing to issue a catalogue of his own. Today the number of catalogues which leave Floral Park each year is well over a million, and Mr. Childs' products are sent to nearly every important country in the world, an especially large trade being done with Australia and New Zealand. These catalogues are printed at Floral Park at the plant of the Mayflower Publishing Company, of which Mr. Childs is president. When this company was founded in 1892 one small press was its capacity; today it has a large web, three cylinder, and three job presses, owns its own electrotyping plant, publishes a local weekly, and employs a total of sixty hands.

"Of the products of Floral Park themselves little need be said, for their reputation is universal. Mr. Childs has always striven to attain the best results possible to a florist who thoroly understands the science of his art, and a very large number of the most popular plants on the market today were originated by him. As a real estate operator Mr. Childs has also been unusually successful, having engineered a number of very profitable deals. At the present time he owns, besides his 300 acres at Floral Park, over 600 acres at St. James. In political life also Mr. Childs has long been a prominent figure.

"But it is as a nataralist, perhaps, more than as anything else that Mr. Childs is well known. In the first place he has one of the finest private libraries in the world of North American natural history. It includes Audubon's original work, Birds of America, as well as other rarities. Mr. Childs also possesses the largest private collection of mounted North American birds extant, together with their nests and eggs, and has besides a collection of shells, insects, and minerals."

The ornithological collection alone now numbers about 1110 species and subspecies of North American Birds, and some 1030 species of eggs in full sets, many of them with nests *in situ*.

Mr. Childs has recently become financially interested in southern California, and his visits to this coast are becoming frequent. We think we have grounds for the expectation that he will ultimately build a home here, and possibly establish his museum in this climate, where collections are so little bothered by mold and other museum pests.

The diminutive winter wren has worn the generic titles of Troglodytes, Anorthura and Olbiorchilus successively on the A. O. U. List during the past ten years. And now it is to moult again, so Dr. Allen and Mr. Stone both tell us. The latest exhumed name for the bird is *Nannus*. This name is brief, like the bird, and means a dwarf; therefore appropriate, and an improvement over any of the others. Long may it wave!

It seems that the "possessives" are not yet exhausted as a subject for logical argument. Mr. Henderson's communication in this issue certainly presents his views as to the correct usage in a convincing manner. Perhaps Mr. Dawson could knock them under, tho!

Messrs. Frank M. Chapman and Louis Agassiz Fuertes spent the earlier portion of the summer in the Rocky Mountains of Canada. They made base camp at timberline, from which they were able to make intimate studies of such alpine-arctic species as the Leucosticte, Pipit and White-tailed Ptarmigan.

We are glad to announce that after something more than a year spent in Colorado and New Mexico, Mr. and Mrs. M. French Gilman have returned to their home at Banning, California. Mr. Gilman will now have more leisure for bird study, and expects to re-visit the Colorado Desert and adjacent mountain ranges with the purpose of tracing the distribution of certain birds and mammals.

Mr. Murray Watson, M. C. O. C., has removed from California, and taken up his residence in Denver, Colorado. That is getting to be a pretty lively center for bird workers of late.

Mr. and Mrs. Vernon Bailey, of Washington, D. C., have been spending the summer in Biological Survey work in southern California.

Mr. Henry B. Kaeding is visiting California again after an extended sojourn in Sinaloa, Mexico.

Dr. T. S. Palmer, of the Biological Survey, visited Los Angeles in the early part of September. His mission was to obtain evidence convicting certain parties of elk-poaching in the Yellowstone National Park. Dr. Palmer is doing a valuable work in prosecuting special cases of game-law infringement, thus showing local wardens what can and should be done in that line. The Survey merits every possible

support, moral and practical, in this line of its work, and we of the Cooper Club are in line to help in the securing of more rigid enforcement of existing game and bird laws.

We are pleased to inform Cooper Club members that the entire cost of this large and varied issue of THE CONDOR is borne by Mr. John Lewis Childs, whose interest in the Club's welfare needs no further proof. Such a large and generous donation means that we are offering our readers in the present Volume far more than their combined dues and subscriptions would alone provide. We take this opportunity of heartily thanking Mr. Childs.

We have heard that Mr. R. H. Beck is contemplating yet another expedition to the Galapagos Archipelago.

The new Secretaty of the Northern Division, Mr. Roswell S. Wheeler, was one of the original group of Cooper Club "boys" who used to hold animated bird meetings at Barlow's or Taylor's thirteen years ago. Those were jolly good times, and there's no reason why we shouldn't enjoy similar occasions now — only, perhaps, we are growing old and our enthusiasm wanes.

Let it be henceforth known, that THE CONDOR management will no longer print "For Sale" ads., relating to birds or eggs. We have been informed that it is contrary to the intent of the law to in any way make a commercial commodity out of such specimens, whether taken under permit or not.

Dr. William Legrange Ralph, the well-known oologist, died at Washington, D. C., on July 8th, at the age of 57.

Dr. Ralph was born at Holland Patent, New York, in 1851. He was graduated in medicine in 1879 from the College of Physicians and Surgeons in New York City, and afterwards engaged in the practice of his profession in Utica, where he had resided since early childhood; but delicate health obliged him to abandon a medical career, and he turned to the less exacting study of natural history. From early boyhood he had cultivated a taste for this subject, and he now began in earnest the formation of a local collection of birds, eggs, and nests. In the study of the local avifauna he was associated with Mr. Egbert Bagg, and the researches of the two students resulted in the publication of an "Annotated List of the Birds of Oneida County, New York"[1] followed shortly by some "Additional Notes on the Birds of Oneida County, New York."[2]

It was to the subject of oology, however, that Dr. Ralph chiefly directed his attention, and after nearly completing his collection of local species he spent much time in searching for desiderata, even employing men by the year in the Adirondacks and in Florida to hunt for certain rarities. In this way, and by direct purchase, he added many choice specimens to his collection, and secured valuable information on the nesting habits of various rare species.

Dr. Ralph early made the acquaintance of Major Bendire, and the two men soon became close friends. After the Major assumed charge of the National Museum collection of eggs, he usually spent his vacation in Utica, while Dr. Ralph always stopped at Washington on his annual visits to Florida. When the "Life Histories" were undertaken, he contributed many notes for them, and the two published volumes teem with items from his pen. In 1892 he sent the first installment of his collection to Washington, as a gift to the National Museum. This generous act was followed year after year by other donations, numbering in all about 10,000 specimens, almost all of which were in faultless condition, and accompanied by ample data.

In 1897, Dr. Ralph was chosen to fill the vacancy caused by the death of Major Bendire, and in 1901 his title was changed from Custodian to Curator. In the same year it was announced that he would continue the work on "Life Histories," and he began at once to accumulate data for the third volume (to include the families in the A. O. U. "Check-List" from the Fringillidæ to the Cœrebidæ); but owing to the precarious state of his health the volume was incomplete at the time of his death.

Dr. Ralph was a genial, mild-mannered man, of a uniformly cheerful and gentle disposition, one whose loss will be keenly felt by a large circle of friends and associates.—C. W. R.

COMMUNICATIONS

THE POSSESSIVE FORM IN VERNACULAR NOMENCLATURE

Editors of THE CONDOR:

Mr. Dawson's suggestion that either the possessive or adjectival form is right in such cases, for example, as *Centronyx bairdii*, seems open to serious question. The sparrow was not given to Mr. Baird. On the contrary, the name of Baird was given to the sparrow. Then why on earth should it be Baird's Sparrow? In many such cases the man whose name is given to the bird has never even seen the species, has had nothing to do with its discovery and was not even aware of the use of his name until the publication of the description. To illustrate,

1 Trans. Oneida Hist. Soc., III, 1886, pp. 101-147.
2 Auk, VII, 1890, pp. 229-232.

the writer knows nothing whatever about the bees—would not know one species from another. He happened to be at the head of an expedition which, utterly unknown to him, collected a new species of bee, which was given his name. Why, then, should he be entitled to call it "Henderson's Bee"? Why not call *Motacilla alba*, white's wagtail, to be consistent? Baird is as much honored by speaking of the Baird Sparrow as by using the possessive. If the possessive is to be used, then it should be the name of the man who actually discovered the first recorded specimen, whether he is the one who described it or whose name was given to it, or not.

JUNIUS HENDERSON.
University of Colorado,
Boulder, Colo.

A PRIZE BIRD DIARY

Editors of THE CONDOR:

An interesting ornithological study was recently successfully conducted by the children in Alameda, California. The children were invited to daily record during a given period of two months all birds which they actually themselves observed; to give the name of the bird, popular and scientific name when possible; to describe the bird's plumage; to say when, where and what the bird was doing at the time of observation; to state anything they knew of the habits, food or nature of the birds; whether resident or visitor; whether common or rare. The children were divided into two grades. Class A, 14 years of age to 10 years; Class B, all 10 years or under. Drawings of the birds were also asked for and thus a most interesting series of pictures of birds were obtained. Many of these pictures were colored and displayed marked ability on the part of the young artists. The number of birds observed and recorded by an individual student reached in some cases sixty, and forty different species, a record which not only indicated a very persistent search on the part of the student, but also an abundant local avifauna which was a revelation to the ordinary resident who from his limited field of observation concluded that there were no birds outside of a Sparrow and a Blackbird. Much interest was taken by parents and teachers and the experiment proved one of much attractiveness as well as one of considerable educational value. Prizes consisting of ornithological books were given to the most deserving students; the judges who examined the reports and upon whose decisions the prizes were awarded were the President, Vice President and Secretary of the Northern Division of the Cooper Club. The following birds were among those recorded: Western Gull, Cormorant, Pelican, Wild Ducks, Wild Geese, Great Blue Heron, Night Heron, Rail, Sandpiper, Curlew, Willet, California Quail, Mourning Dove, Sharp-shinned Hawk, Red-tailed Hawk, Barn Owl, Burrowing Owl, California Woodpecker, Lewis Woodpecker, Red-shafted Flicker, Allen Hummingbird, Wood Pewee, Western Flycatcher, Blue Jay, Redwinged Blackbird, Meadow Lark, Oriole, Blackbird, Goldfinch, White-crowned Sparrow, Golden-crowned Sparrow, Oregon Junco, English Sparrow, Oregon Towhee, California Towhee, Grosbeak, Louisiana Tanager, Cliff Swallow, Barn Swallow, Cedar Waxwing, Shrike, Warbling Vireo, Lutescent Warbler, Yellow Warbler, Audubon Warbler, American Pipit, California Thrasher, Winter Wren, Parkman Wren, Nuthatch, Titmouse, Bush-Tit, Ruby-crowned Kinglet, Russet-backed Thrush, Dwarf Hermit Thrush, Robin, Varied Thrush, Blue Bird.

FREDERICK W. D'EVELYN

PUBLICATIONS REVIEWED

THE EYES AND EYESIGHT OF BIRDS, WITH ESPECIAL REFERENCE TO THE APPEARANCE OF THE FUNDUS OCULI, by CASEY A. WOOD, M. D., D. C. L., F. Z. S. (= Reprint from *Ophthalmology*, April, 1907, 24 pages, 2 colored plates, 8 illustrations in text.)

Eyesight and the structure of the eye is a most absorbing and interesting study. Since in birds vision reaches its highest expression, and since there are more wonderful adaptations of eye-structure in this class than in any other, surely a few moments spent in the consideration of bird's eyes will not be wasted.

The visual capacity of birds is very great. Dr. Wood takes the case of the humming-bird, which flies more rapidly than our eyes can possibly follow, and yet alights suddenly upon an almost invisible twig; of the woodcock, which flies rapidly thru dense forests, dodging every branch and twig; of the owl, which sees at night as well as it does in the day-time; and of the kingfisher, which can see in the water as well as in the air.

The author makes many original observations upon the likeness and unlikeness existent between the bird's eye and the human eye, taking up the bird's power of accommodation in some details. In this connection he quotes C. William Beebe, who asserts that a bird can transform his eye from a telescope to a microscope in a fraction of a second. A bird is able to see objects a quarter of a mile away which to us would be invisible, while on the other hand it can pick tiny seeds from the dust which we would need a magnifying glass to distinguish.

Much of the paper is devoted to a consideration of the ocular fundus, or the background of the eye as revealed by the use of the ophthalmoscope. Attention is called to the fact that

the regions of most distinct vision, called *macular* regions, and the depressions within their boundaries, called *foveæ* (singular, fovea), vary in position in different birds. In hawks, eagles, kingfishers, and insectivorous birds, which have the eyes placed upon the sides of the head so as to increase the size of the field of vision, two macular regions, and generally two foveæ, are found in the fundus of *each* eye. Dr. Wood infers from this that such birds have stereoscopic, or binocular vision in each eye, and accounts for their wonderful powers of fixation in this way. It is to be doubted whether this inference is correct. Binocular vision requires the production of *two similar images*. How could two images be formed in the same eye with only one lens?

That peculiar organ, the pecten or marsupium, comes in for a share of the discussion. This body is possessed by every bird. It stretches out from the ocular fundus into the vitreous humour almost to the lens. The form and complexity of the pecten vary much in different species. Its function may be to assist in pushing the crystalline lens forward during accommodative efforts, and it may also have something to do with the nourishing of the non-vascular structures within the eyeball.

Dr. Wood asserts that the background of the eye furnishes certain data of value in classification, since "wild species present invariable ophthalmoscopic pictures." On the whole the paper is very readable and well worth consideration.—WALTER P. TAYLOR.

THE BIRDS OF THE CHICAGO AREA[1], by FRANK M. WOODRUFF, is a bulletin which, in many respects, is a model of what a local list should be. It contains a full description of the territory included in the Chicago area, its climatic influences, and localities of interest; the latter of special interest to not only local but visiting ornithologists.

Many of the conditions opposed to birds are well brought out and one can well comprehend why many species once so plentiful about the head of the lake are now rarely seen.

A dozen full-page half-tones illustrate in a striking manner the more prominent features of the topography. The "List" itself contains 316 species and subspecies, and shows a great amount of careful research. It includes, besides the scientific and common names, all the synomyns, both popular and scientific.

One thing, however, is painfully evident and that is the very small amount of information regarding our birds which has been obtained during the past fifteen years. Mr. Woodruff has been indefatigable in his investigations, but aside from an occasional record by one of the few ornithologists of this locality he has confined himself almost entirely to his own personal observations. This fact, and because of the size of the area, some parts of which were visited only at intervals of many years, makes the records scattering and often twenty years apart. To overcome this dearth of notes, Nelson's "Birds of Northeastern Illinois" has been quoted so frequently as to make the list, at times, seem more of a compilation than a record of up-to-date observations. Of about fifty birds listed there is nothing noted since 1876. It is therefore evident that many of these species should either be placed in a hypothetical list or else something more recent than a record of thirty-one years standing discovered in regard to them.

It is, however, fortunate for Chicago ornithology that there is one man among its two million inhabitants who has not succumbed entirely to the spirit of commercialism which prevades the Chicago area, and that he has had the courage to put in the shape of a list the results of twenty-five years labor.

Nelson 1876, Ridgway 1889 and 1895, and Woodruff in 1906, are all epoch making periods and we can only express regret that such long intervals elapse between them.

A bibliography, and an index of both scientific and common names, complete a very commendable effort.—F. S. D.

STATE OF NEW YORK; FOREST, FISH AND GAME COMMISSION; 1902-1903, 8th and 9th Reports; Royal 8 vo., pages 456; half-tones 156, 38 in color, 20 of them birds.—This is one of the most handsome state reports of its nature ever gotten up; and in the fullness of the ground gone over, the forest and game articles will prove instructive as well as interesting reading. There are two ornithological papers, dealing with "Birds as Conservators of the Forest" and "The Wild Fowls of the St. Lawrence River." The former article is by Dr. F. E. L. Beal, the expert bird-food authority. New York has chosen well a man to show them the beneficial office of birds as destroyers of forest insect pests.

Dr. Beal opens his paper with an account of "Birds that Destroy Insects": how their busy lives are spent in hunting down the hoards of noxious insects that are daily attacking the forest trees. He mentions how some insects are supposed to be protected by their color, smell or taste; but stomach examination proves otherwise as to the keen senses and sharp appetites of their feathered enemies. In many cases where species of insects had strong odors and rank taste which were thought to protect them, these very species were found to form a very important percentage of the birds' food, often eaten to a varying extent by nearly all

[1] The Chicago Academy of Sciences | — | The Birds of the Chicago Area | by | Frank Morley Woodruff | — | Bulletin No. VI | of | The Natural History Survey | — | Issued April 15, 1907; pp. 1-222, frontispiece, plates I-XI, all half-tones.

insectivorous species. Dr. Beal heads the list of beneficial birds of the forest with "The Woodpeckers", as taking the lead in the welfare of tree life. The first colored plate shown of this group, is of a Red-headed Woodpecker at the end of a dead stub, a big brown and yellow-edged grasshopper in its bill ready for the gaping mouth of a young bird humped up on the other side of the stub, in all anxiety and expectation of that hopper. It is the most happy thought for a plate, of the sixteen bird groups, all by that great bird delineator of the present day Louis Agassiz Fuertes. Other plates show the Northern Hairy, White-backed Three-toed and Black-backed Three-toed Woodpeckers, the Yellow-bellied Sapsucker, and male Flicker. Dr. Beal also mentions that the Warblers, Vireos, Chickadees, Creepers, Cuckoos, Orioles, Robins, Kinglets, Pine Grosbeaks, Crossbills, Crows, and Blue Jays, all play an important part as conservors of the forest. Crows, Blue Jays, Crossbills and many of the Woodpeckers perform a great part, in the planting of tree seeds, which replenish the forests. Birds of prey are also shown to be of some benefit by keeping down the many smaller mammals so destructive to young tree growth.

In the concluding article, "The Wild Fowl of the St. Lawrence River", by J. W. Dunham, are shown three colored plates by Fuertes, of the Hooded Merganser, Pintail and Golden-Eye; there are also nine half-tone plates of nests and birds from life. Mr. Dunham gives an account of the water fowl's habits, as they occur on the St. Lawrence River, and mentions such restriction as should be made to protect them and other game of this river once so famed for its wild fowl.—W. O. E.

The Bulletin of the Illinois State Laboratory of Natural History for April, 1907, pp. 305-335, contains a very novel article by S. A. FORBES, Ph. D., which is entitled, "AN ORNITHOLOGICAL CROSS-SECTION OF ILLINOIS IN AUTUMN."

The paper deals with the science of ecology, or the relations of organisms to their environment, animate or inanimate. At the outset the two terms, special ecology and general ecology, are discriminated between, special ecology being the ecology of *one* species, while general ecology is the study of the ecology of a whole assemblage of species. Most work previously carried on in this line has dealt with special ecology. This article is given up to a discussion of the general phase of the study in a truly original manner.

There has been carried on in the past, by the Biological Survey and by various other laboratories, considerable study of the food habits of various species of birds. Dr. Forbes conclusively shows that the data in this line which has been accumulated is not practically applicable until the *relative numbers* and *exact distribution* of each species are known.

Two students were sent out by the Illinois State Laboratory to traverse the state in various directions, keeping accurate account of the distance traveled, birds seen, and crop areas passed over. The trip considered in this paper was made across the state from east to west in a straight line, from Danville, near the Indiana line, to Quincy, on the Mississippi. The men traveled 50 yards apart for the whole distance, taking account of all birds seen within this strip and 100 yards in front of them. Crops of corn, wheat, clover, timothy, millet, fruit, and timber were passed thru, and some pasture, meadow, stubble, plowed ground, yard and swamp lands were included in the strip.

The most numerous bird was the English Sparrow, 1620 of the 4804 birds seen belonging to that species. In all, 92 species of birds were observed, altho 85 per cent of the individual birds seen belonged to 15 species.

The bulk of the paper consists of tables of numerical facts, worked out from the data furnished by the two field observers. In these tables every possible relation of each species of bird to every other and to the various crops is taken into account.

In point of area corn was the principal crop, with the area in pasture land and stubblefield coming next.

From the tables it is apparent that the English Sparrow was the principal corn-field species; the Meadow Lark was most abundant in stubble fields and fields of young wheat; in pasture land the English Sparrow was the commonest, with the Crow-blackbird a close second; the Meadow Lark and Cowbird were equally abundant in meadows; Horned Larks were most numerous on plowed ground; while the ever-present English Sparrow was most numerous in orchards.

By taking the ratio of the birds found in a particular crop to the whole number of birds as a dividend, and the ratio of the area in that crop to the entire area as a divisor, the *frequency ratio* of the bird and crop in question is found. Then by dividing the frequency ratios of a species for each crop by its frequency ratios for all the other crops, the *coefficients* of *preference* are obtained.

The article closes with a table of the 92 species identified, with the numbers of each. It is characterized thruout by the mathematical precision with which the observed facts have been recorded. A new and instructive line of work is opened. It would certainly seem that the true ecological significance of the birds of a community could be gotten at in no surer or simpler way than this. In place of general inferences, results have been actually figured out, accurately and graphically.—WALTER P. TAYLOR.